

03/08/00  
15760 U.S. PTO

3-10-00 4  
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**CERTIFICATE OF EXPRESS MAILING**

This transmittal and the documents and/or fees itemized hereon and attached hereto have been deposited as "Express Mail Post Office to Addressee" in accordance with 37 CFR §1.10 with Express Mailing Label Number **EL468400529US**.

Attorney Docket No. AND1P525

First Named Inventor:

FANO, Andrew E.

15760 U.S. PTO  
09/520943  
00/80/00

**UTILITY PATENT APPLICATION TRANSMITTAL (37 CFR § 1.53(b))**

Assistant Commissioner for Patents

Box Patent Application

Washington, DC 20231

☐ Duplicate for  
fee processing

Sir: This is a request for filing a patent application under 37 CFR § 1.53(b) in the name of inventor:  
**Andrew E. Fano and Scott Kurth**

For: **SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR MAKING FINANCIAL DECISIONS BY BALANCING GOALS IN A FINANCIAL MANAGER**

Application Elements:

- ☒ 48 Pages of Specification, Claims and Abstract  
☒ 18 Sheets of Drawings  
☐ \*\* Pages Combined Declaration and Power of Attorney

Accompanying Application Parts:

- ☐ Assignment and Assignment Recordation Cover Sheet (recording fee of **\$40.00** enclosed)  
☐ 37 CFR 3.73(b) Statement by Assignee  
☐ Information Disclosure Statement with Form PTO-1449  
☐ Copies of IDS Citations  
  
☐ Preliminary Amendment  
☒ Return Receipt Postcard  
☐ Small Entity Statement(s)  
☒ Other: **NO FEES ENCLOSED**

☒ The Commissioner is authorized to charge any required fees, or to credit any overpayment, to Deposit Account No. 50-0797 (Order No. AND1P525).

General Authorization for Petition for Extension of Time (37 CFR § 1.136)

☒ Applicants hereby make and generally authorize any Petitions for Extensions of Time as may be needed for any subsequent filings. The Commissioner is also authorized to charge any extension fees under 37 CFR § 1.17 as may be needed to Deposit Account No. 50-0797 (Order No. AND1P525).

☒ Please send correspondence to the following address:

HICKMAN STEPHENS COLEMAN & HUGHES, LLP  
P.O. Box 52037  
Palo Alto, CA 94303-0746

Tel (408) 558-9950  
Fax (408) 558-9960




Customer Number::

**23053**

PATENT TRADEMARK OFFICE

Date: March 8, 2000

  
\_\_\_\_\_  
**L. Keith Stephens**  
Registration No. 32,632

## INVENTOR INFORMATION

Inventor One Given Name:: Andrew E  
Family Name:: Fano  
Postal Address Line One:: 1137 Maple Avenue #1E  
City:: Evanston  
State or Province:: Illinois  
Country:: USA  
Postal or Zip Code:: 60602  
Citizenship Country:: USA  
Inventor Two Given Name:: Scott  
Family Name:: Kurth  
Postal Address Line One:: 500 Bridle Trail  
City:: Wheeling  
State or Province:: Illinois  
Country:: USA  
Postal or Zip Code:: 60090  
Citizenship Country:: USA

## CORRESPONDENCE INFORMATION

Correspondence Customer Number:: 23053  
Fax One:: 408-558-9960  
Electronic Mail One:: jcurts@hickman.com

## APPLICATION INFORMATION

Title Line One:: SYSTEM, METHOD AND ARTICLE OF MANUFACTUR  
Title Line Two:: E FOR MAKING FINANCIAL DECISIONS BY BALA  
Title Line Three:: NCING GOALS IN A FINANCIAL MANAGER  
Total Drawing Sheets:: 18  
Formal Drawings?: Yes  
Application Type:: Utility  
Docket Number:: AND1P525  
Secrecy Order in Parent Appl.?: No

## REPRESENTATIVE INFORMATION

Representative Customer Number:: 23053  
Source:: PrintEFS Version 1.0.1

# **SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR MAKING FINANCIAL DECISIONS BY BALANCING GOALS IN A FINANCIAL MANAGER**

5

## **FIELD OF THE INVENTION**

The present invention relates to financial planning and more particularly to making financial decisions by balancing goals in a network-based financial manager

10

## **BACKGROUND OF THE INVENTION**

Historically, consumers have conducted most of their exchange transactions through  
15 non-electronic means. The use of non-electronic means of exchange requires manual record keeping in order to collect, collate, and analyze data on the sources and uses of funds. This has resulted in substantial expenditures for accounting by virtually all consumers. For example, at the end of each month many consumers try to: compile records of the amount of cash paid to providers of goods and services,  
20 balance their check book and collate all their credit card receipts and compare them to statements received from each card issuer. The consumer then determines whether she is over, under, or on budget. Despite a proliferation of personal financial management software in recent years, no means have been developed to eliminate the time and expense of data collection and entry or to enhance on-line  
25 financial management.

Banks and other financial intermediaries have offered consumers only standardized financial service products. The standardization of financial products reduced data processing and marketing costs for financial institutions, but resulted in financial  
30 services that were often ill-suited for consumers. For example, mortgage lending against homes has been practiced for many years, but only very recently have several new financial products been introduced in an effort to make mortgage

lending more attractive to financial institutions, and to make housing more affordable to prospective homeowners. Additionally, many of the terms of the financial service products are fixed and inflexible. These products have not afforded consumers the ability to alter their consumption, investment or savings behavior to best suit their own or the economy's changing circumstances.

Moreover, product proliferation in the financial services market has presented the consumer with a confusing array of choices without a convenient, objective or clearly documented means of selecting the best combination of financial services to realize the consumer's financial objectives. Individual purveyors of financial services have often solicited customers and marketed their products on an ad hoc basis. Financial institutions usually possess only limited knowledge of the customer's total financial condition and hence they often try to sell a product that is most advantageous to the institution, not the customer. Moreover, at the present time customers must spend a substantial amount of time coordinating and monitoring their holdings of many different financial services from many different suppliers. In essence, consumers today are required to be the systems integrator for the disparate data processing systems of their financial providers. Few individuals have the time, interest or ability to perform this difficult task well.

Despite the development of some new financial products, such products have not succeeded in meeting the goals of either the mortgagor or the financial institutions. For example, financial institutions have traditionally lent funds to individuals on a fully secured basis, with an interest rate greater than their cost of funding the loan. In the last few years, however, the financial industry has been deregulated making it possible for a variety of financial institutions and firms that market financial services (hereinafter referred to as "financial institutions") to sell an entire range of financial products. Thus, in addition to the traditional objectives of a mortgagee, many financial institutions now view mortgage lending as a vehicle to encourage the borrower to purchase one or more financial service products. Methods are needed,

however, to facilitate the provision of one or more financial services in an efficient and comprehensible manner.

From the point of view of the consumer, problems remain concerning the relative  
5 inflexibility of financial service products. Rapidly changing international, domestic,  
and personal economic circumstances require flexibility in financial service  
products. This allows the consumer the ability to adjust her asset and liability  
holdings and the terms of financial obligations to take best advantage of such  
changing circumstances. Many financial service products were developed at a time  
10 when it would have been impossible for a financial intermediary to offer  
customized, derivative or synthetic financial service products (hereinafter referred to  
as "derivative products") to individual consumers. With the advent of recent  
significant advances in information technology, it is possible for financial  
intermediaries to offer derivative financial service products to individual consumers  
15 in accordance with the individual's financial resources, forecast future income and  
expenses, and attitude toward investment risk.

For example, consider the relative inflexibility of the traditional fixed rate mortgage.  
(Here, "mortgage" means the entire relationship between the financial institution  
20 and the borrower: the loan, the security interest and the contractual obligation to pay  
the loan. In other contexts, the term "mortgage" will be used in its traditional sense  
to refer to a conditional transfer of real property to secure a loan.) The standard  
fixed rate thirty year mortgage was developed in part because it provided a  
standardized financial service product with constant monthly payments. Thus, it was  
25 cost effective for a financial service intermediary to offer its customers. It was  
structured to accommodate the accounting or data processing department of the  
bank or thrift institution as opposed to the best interest of the consumer. The  
mortgagor is locked in to an inflexible payment schedule which typically extends  
over most of the years in which he is working. This is analogous to a shoe store  
30 offering only one size and type of shoe. Under this arrangement, the shoe store  
realizes significant cost efficiencies at the expense of its customer's comfort.

The wide variety of individuals' financial resources and investment risk outlooks requires financial service products to be both tailored to the current needs of individuals and sufficiently flexible to accommodate future variations in their requirements. In addition, the constantly changing nature of an individual's financial circumstances, the financial markets, and the applicable income and estate tax regulations demand flexible financial service products.

Products currently offered do not take advantage of recent advances in information and problem solving technologies. Nor do they take advantage of the deregulation of the financial services industry. Moreover, financial service products do not adequately accommodate either the diversity or the constantly changing nature of individuals' financial preferences or circumstances. Financial service products are not offering the consumer a full range of financial services that would help maximize his financial return and make housing affordable to a greater number of individuals.

In addition to the failing of the financial service product offerings, there are certain fundamental problems with the methods and apparatus currently used to effect the exchange of goods and services, savings, investments and borrowing. Currently in the United States, there are 25,000 depositories and approximately 266 million individuals. Based upon an analysis made by two officials of the Federal Reserve, (Humphrey, David B. and Berger, Allen N. "Market Failure and Resource Use: Economic Incentives to Use Different Payment Instrument," 1990), approximately 97 percent of all payments are made by either cash or check, of which cash payments are 83.42 percent of the total and check transactions are equal to 14.04 percent. Credit cards account for only 1.52 percent of all transactions. Only 0.34 percent of all payments are made electronically in the United States. Clearly, the small percentage of credit card and electronic payments reveal a critical failing in the current methods employed to effect these methods of exchange.

- Cash payments total 278.6 billion transactions per year, whereas those made by check are equal to 47 billion and those made by credit card are 5.11 billion. Because of the differences in the amount of the transactions, however, there is a greater dollar value with respect to transactions made by check, as opposed to cash. There
- 5 were \$55.8 trillion in checking transactions as opposed to only \$1.4 trillion in cash and \$0.317 trillion by credit card. The average size of a check transaction is \$1,188, the average size of a credit card transaction is \$62 and the average size of a cash transaction is only \$5.
- 10 Recent studies from the Federal Reserve Board suggest an economic rationale which explains why consumers pay by check where larger dollar amounts are involved. They stated that, because of the benefits of the "float" which approximates 3.7 days for each checking transaction, consumers and businesses have an incentive to use checks for larger transactional payments. However, another compelling
- 15 reason for consumers to use checks is that consumers are afforded, albeit in an archaic manual form, a means of record keeping for their transactions that is contemporaneous with the execution of the transaction. With cash transactions, obviously, that type of convenience and contemporaneous record keeping does not occur. With regard to transactions utilizing credit cards, although one receives a
- 20 piece of paper, the transactions are not incorporated into any kind of systematic accounting that is held or may be easily accessed by the consumer. It is our view that this record keeping feature makes check transactions the most significant dollar value means of exchange in the United States. When the amount of money spent matters, consumers prefer to have a record of the transaction.
- 25 Officials from the Federal Reserve Board have estimated the production and processing cost of cash transactions in the United States at approximately \$11.27 billion. Transactions paid by check cost considerably more, \$37.366 billion. Transactions paid by credit card cost \$4.5 billion. This equates to a production and
- 30 processing cost per transaction of \$0.04 for every cash transaction, \$0.79 for every transaction made by check and \$0.88 for every transaction made by credit card.



These cost estimates represent the direct production and processing costs that are ultimately borne by the consumer. They do not, however, include the attendant costs required for a consumer to then efficiently serve as the systems integrator for her banks, brokers, insurers and merchants. The consumer is left to aggregate disparate data from cash, check and credit card transactions into an amenable financial plan and integrate this information to satisfy annual reporting requirements such as tax returns to the treasury.

In addition to the approximately \$50 billion cost of production and processing exchange transactions, currently there is no adequate means of assuring the security of transactional data, and tracking that data and compiling it for review. Credit card fraud losses are estimated to amount to \$70 billion per year in the U.S. alone. Unreported cash transactions are estimated to defraud the U.S. Government of \$150 billion in annual tax revenue. These annual fraud-related losses are approximately equal to the projected annual federal budget deficit. The current system of exchange and security verification revolves around the use of a social security number, name, address and credit card or checking account number. In other words, authentication of identity is almost solely based upon numeric or alphanumeric data. Once a criminal has misappropriated some or all of this data, he can effect almost any transaction and can effectively control an individual's assets, liabilities, and accounts.

Currently, there is no convenient or adequate means of tracking transactional data for consumption, savings, investments, bonuses, discounts and rebates associated with these activities. This is financially injurious to the U.S. Treasury, and it is very inconvenient for consumers. Billions of hours of citizens' time is spent compiling data for tax returns. Millions of hours of IRS officials' time is spent checking them for accuracy. James L. Payne in *Costly Returns* has estimated the annual cost of tax compliance in the United States alone at \$360 billion. Moreover, under the current system of exchange it is impossible for economic policy makers to get an accurate

real time reading on the state of the economy, and consequently, economic policy is frequently ill-timed and misguided.

5 Data is also not compiled and presented in a manner that allows individuals to make the appropriate informed decisions about their consumption, savings and investment behavior. This makes it difficult for consumers to properly visualize the value of their potential savings and investment. This has led to a consumption-based society with inadequate levels of personal savings, potentially resulting in disastrous long term consequences for the American economy and society at large.

10

Furthermore, this excessive reliance on paper-based transactional media has an adverse environmental impact and may, according to certain studies, directly contribute to global warming. There is a significant adverse environmental impact of the paper currency and paper check-based society. Credit and debit cards also  
15 generate paper and carbon based transactional reporting media. None of the current forms of exchange provide a sufficient benefit for consumers to change their modes of transactional behavior.

The current system of exchange, savings, investment and borrowing makes it very  
20 difficult to adequately manage risk exposure for and by consumers, banks, and the U.S. Government. Accordingly, each year, approximately 10 million individuals are forced to file bankruptcy; financial institutions incur substantial bad debt losses; and the U.S. government is forced to write off un-collectible tax revenues.

25 The aggregate production and processing cost of the current system of exchange in the United States is estimated by Federal Reserve officials to be in excess of \$60 billion each year. However, as demonstrated above, the total direct and indirect social, economic and environmental costs associated with the predominantly cash and check-based current system are far greater.

30

## SUMMARY OF THE INVENTION

- A system, method and article of manufacture are provided for balancing attainment of goals. First, a plurality of goals are presented to a user. The goals may be
- 5 previously selected by the user or may include a default set of goals, for example. The user is permitted to adjust preferences related to a selected one or more of the goals. An impact on attaining some or all of the goals is determined based on the adjusted preferences. Such impact may relate to any aspect of the user, i.e. financial situation, etc. The impact on attaining the goals is then displayed to the user.

10

11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100  
101  
102  
103  
104  
105  
106  
107  
108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265  
266  
267  
268  
269  
270  
271  
272  
273  
274  
275  
276  
277  
278  
279  
280  
281  
282  
283  
284  
285  
286  
287  
288  
289  
290  
291  
292  
293  
294  
295  
296  
297  
298  
299  
300  
301  
302  
303  
304  
305  
306  
307  
308  
309  
310  
311  
312  
313  
314  
315  
316  
317  
318  
319  
320  
321  
322  
323  
324  
325  
326  
327  
328  
329  
330  
331  
332  
333  
334  
335  
336  
337  
338  
339  
340  
341  
342  
343  
344  
345  
346  
347  
348  
349  
350  
351  
352  
353  
354  
355  
356  
357  
358  
359  
360  
361  
362  
363  
364  
365  
366  
367  
368  
369  
370  
371  
372  
373  
374  
375  
376  
377  
378  
379  
380  
381  
382  
383  
384  
385  
386  
387  
388  
389  
390  
391  
392  
393  
394  
395  
396  
397  
398  
399  
400  
401  
402  
403  
404  
405  
406  
407  
408  
409  
410  
411  
412  
413  
414  
415  
416  
417  
418  
419  
420  
421  
422  
423  
424  
425  
426  
427  
428  
429  
430  
431  
432  
433  
434  
435  
436  
437  
438  
439  
440  
441  
442  
443  
444  
445  
446  
447  
448  
449  
450  
451  
452  
453  
454  
455  
456  
457  
458  
459  
460  
461  
462  
463  
464  
465  
466  
467  
468  
469  
470  
471  
472  
473  
474  
475  
476  
477  
478  
479  
480  
481  
482  
483  
484  
485  
486  
487  
488  
489  
490  
491  
492  
493  
494  
495  
496  
497  
498  
499  
500  
501  
502  
503  
504  
505  
506  
507  
508  
509  
510  
511  
512  
513  
514  
515  
516  
517  
518  
519  
520  
521  
522  
523  
524  
525  
526  
527  
528  
529  
530  
531  
532  
533  
534  
535  
536  
537  
538  
539  
540  
541  
542  
543  
544  
545  
546  
547  
548  
549  
550  
551  
552  
553  
554  
555  
556  
557  
558  
559  
560  
561  
562  
563  
564  
565  
566  
567  
568  
569  
570  
571  
572  
573  
574  
575  
576  
577  
578  
579  
580  
581  
582  
583  
584  
585  
586  
587  
588  
589  
590  
591  
592  
593  
594  
595  
596  
597  
598  
599  
600  
601  
602  
603  
604  
605  
606  
607  
608  
609  
610  
611  
612  
613  
614  
615  
616  
617  
618  
619  
620  
621  
622  
623  
624  
625  
626  
627  
628  
629  
630  
631  
632  
633  
634  
635  
636  
637  
638  
639  
640  
641  
642  
643  
644  
645  
646  
647  
648  
649  
650  
651  
652  
653  
654  
655  
656  
657  
658  
659  
660  
661  
662  
663  
664  
665  
666  
667  
668  
669  
670  
671  
672  
673  
674  
675  
676  
677  
678  
679  
680  
681  
682  
683  
684  
685  
686  
687  
688  
689  
690  
691  
692  
693  
694  
695  
696  
697  
698  
699  
700  
701  
702  
703  
704  
705  
706  
707  
708  
709  
710  
711  
712  
713  
714  
715  
716  
717  
718  
719  
720  
721  
722  
723  
724  
725  
726  
727  
728  
729  
730  
731  
732  
733  
734  
735  
736  
737  
738  
739  
740  
741  
742  
743  
744  
745  
746  
747  
748  
749  
750  
751  
752  
753  
754  
755  
756  
757  
758  
759  
760  
761  
762  
763  
764  
765  
766  
767  
768  
769  
770  
771  
772  
773  
774  
775  
776  
777  
778  
779  
780  
781  
782  
783  
784  
785  
786  
787  
788  
789  
790  
791  
792  
793  
794  
795  
796  
797  
798  
799  
800  
801  
802  
803  
804  
805  
806  
807  
808  
809  
810  
811  
812  
813  
814  
815  
816  
817  
818  
819  
820  
821  
822  
823  
824  
825  
826  
827  
828  
829  
830  
831  
832  
833  
834  
835  
836  
837  
838  
839  
840  
841  
842  
843  
844  
845  
846  
847  
848  
849  
850  
851  
852  
853  
854  
855  
856  
857  
858  
859  
860  
861  
862  
863  
864  
865  
866  
867  
868  
869  
870  
871  
872  
873  
874  
875  
876  
877  
878  
879  
880  
881  
882  
883  
884  
885  
886  
887  
888  
889  
890  
891  
892  
893  
894  
895  
896  
897  
898  
899  
900  
901  
902  
903  
904  
905  
906  
907  
908  
909  
910  
911  
912  
913  
914  
915  
916  
917  
918  
919  
920  
921  
922  
923  
924  
925  
926  
927  
928  
929  
930  
931  
932  
933  
934  
935  
936  
937  
938  
939  
940  
941  
942  
943  
944  
945  
946  
947  
948  
949  
950  
951  
952  
953  
954  
955  
956  
957  
958  
959  
960  
961  
962  
963  
964  
965  
966  
967  
968  
969  
970  
971  
972  
973  
974  
975  
976  
977  
978  
979  
980  
981  
982  
983  
984  
985  
986  
987  
988  
989  
990  
991  
992  
993  
994  
995  
996  
997  
998  
999  
1000  
1001  
1002  
1003  
1004  
1005  
1006  
1007  
1008  
1009  
1010  
1011  
1012  
1013  
1014  
1015  
1016  
1017  
1018  
1019  
1020  
1021  
1022  
1023  
1024  
1025  
1026  
1027  
1028  
1029  
1030  
1031  
1032  
1033  
1034  
1035  
1036  
1037  
1038  
1039  
1040  
1041  
1042  
1043  
1044  
1045  
1046  
1047  
1048  
1049  
1050  
1051  
1052  
1053  
1054  
1055  
1056  
1057  
1058  
1059  
1060  
1061  
1062  
1063  
1064  
1065  
1066  
1067  
1068  
1069  
1070  
1071  
1072  
1073  
1074  
1075  
1076  
1077  
1078  
1079  
1080  
1081  
1082  
1083  
1084  
1085  
1086  
1087  
1088  
1089  
1090  
1091  
1092  
1093  
1094  
1095  
1096  
1097  
1098  
1099  
1100  
1101  
1102  
1103  
1104  
1105  
1106  
1107  
1108  
1109  
1110  
1111  
1112  
1113  
1114  
1115  
1116  
1117  
1118  
1119  
1120  
1121  
1122  
1123  
1124  
1125  
1126  
1127  
1128  
1129  
1130  
1131  
1132  
1133  
1134  
1135  
1136  
1137  
1138  
1139  
1140  
1141  
1142  
1143  
1144  
1145  
1146  
1147  
1148  
1149  
1150  
1151  
1152  
1153  
1154  
1155  
1156  
1157  
1158  
1159  
1160  
1161  
1162  
1163  
1164  
1165  
1166  
1167  
1168  
1169  
1170  
1171  
1172  
1173  
1174  
1175  
1176  
1177  
1178  
1179  
1180  
1181  
1182  
1183  
1184  
1185  
1186  
1187  
1188  
1189  
1190  
1191  
1192  
1193  
1194  
1195  
1196  
1197  
1198  
1199  
1200  
1201  
1202  
1203  
1204  
1205  
1206  
1207  
1208  
1209  
1210  
1211  
1212  
1213  
1214  
1215  
1216  
1217  
1218  
1219  
1220  
1221  
1222  
1223  
1224  
1225  
1226  
1227  
1228  
1229  
1230  
1231  
1232  
1233  
1234  
1235  
1236  
1237  
1238  
1239  
1240  
1241  
1242  
1243  
1244  
1245  
1246  
1247  
1248  
1249  
1250  
1251  
1252  
1253  
1254  
1255  
1256  
1257  
1258  
1259  
1260  
1261  
1262  
1263  
1264  
1265  
1266  
1267  
1268  
1269  
1270  
1271  
1272  
1273  
1274  
1275  
1276  
1277  
1278  
1279  
1280  
1281  
1282  
1283  
1284  
1285  
1286  
1287  
1288  
1289  
1290  
1291  
1292  
1293  
1294  
1295  
1296  
1297  
1298  
1299  
1300  
1301  
1302  
1303  
1304  
1305  
1306  
1307  
1308  
1309  
1310  
1311  
1312  
1313  
1314  
1315  
1316  
1317  
1318  
1319  
1320  
1321  
1322  
1323  
1324  
1325  
1326  
1327  
1328  
1329  
1330  
1331  
1332  
1333  
1334  
1335  
1336  
1337  
1338  
1339  
1340  
1341  
1342  
1343  
1344  
1345  
1346  
1347  
1348  
1349  
1350  
1351  
1352  
1353  
1354  
1355  
1356  
1357  
1358  
1359  
1360  
1361  
1362  
1363  
1364  
1365  
1366  
1367  
1368  
1369  
1370  
1371  
1372  
1373  
1374  
1375  
1376  
1377  
1378  
1379  
1380  
1381  
1382  
1383  
1384  
1385  
1386  
1387  
1388  
1389  
1390  
1391  
1392  
1393  
1394  
1395  
1396  
1397  
1398  
1399  
1400  
1401  
1402  
1403  
1404  
1405  
1406  
1407  
1408  
1409  
1410  
1411  
1412  
1413  
1414  
1415  
1416  
1417  
1418  
1419  
1420  
1421  
1422  
1423  
1424  
1425  
1426  
1427  
1428  
1429  
1430  
1431  
1432  
1433  
1434  
1435  
1436  
1437  
1438  
1439  
1440  
1441  
1442  
1443  
1444  
1445  
1446  
1447  
1448  
1449  
1450  
1451  
1452  
1453  
1454  
1455  
1456  
1457  
1458  
1459  
1460  
1461  
1462  
1463  
1464  
1465  
1466  
1467  
1468  
1469  
1470  
1471  
1472  
1473  
1474  
1475  
1476  
1477  
1478  
1479  
1480  
1481  
1482  
1483  
1484  
1485  
1486  
1487  
1488  
1489  
1490  
1491  
1492  
1493  
1494  
1495  
1496  
1497  
1498  
1499  
1500  
1501  
1502  
1503  
1504  
1505  
1506  
1507  
1508  
1509  
1510  
1511  
1512  
1513  
1514  
1515  
1516  
1517  
1518  
1519  
1520  
1521  
1522  
1523  
1524  
1525  
1526  
1527  
1528  
1529  
1530  
1531  
1532  
1533  
1534  
1535  
1536  
1537  
1538  
1539  
1540  
1541  
1542  
1543  
1544  
1545  
1546  
1547  
1548  
1549  
1550  
1551  
1552  
1553  
1554  
1555  
1556  
1557  
1558  
1559  
1560  
1561  
1562  
1563  
1564  
1565  
1566  
1567  
1568  
1569  
1570  
1571  
1572  
1573  
1574  
1575  
1576  
1577  
1578  
1579  
1580  
1581  
1582  
1583  
1584  
1585  
1586  
1587  
1588  
1589  
1590  
1591  
1592  
1593  
1594  
1595  
1596  
1597  
1598  
1599  
1600  
1601  
1602  
1603  
1604  
1605  
1606  
1607  
1608  
1609  
1610  
1611  
1612  
1613  
1614  
1615  
1616  
1617  
1618  
1619  
1620  
1621  
1622  
1623  
1624  
1625  
1626  
1627  
1628  
1629  
1630  
1631  
1632  
1633  
1634  
1635  
1636  
1637  
1638  
1639  
1640  
1641  
1642  
1643  
1644  
1645  
1646  
1647  
1648  
1649  
1650  
1651  
1652  
1653  
1654  
1655  
1656  
1657  
1658  
1659  
1660  
1661  
1662  
1663  
1664  
1665  
1666  
1667  
1668  
1669  
1670  
1671  
1672  
1673  
1674  
1675  
1676  
1677  
1678  
1679  
1680  
1681  
1682  
1683  
1684  
1685  
1686  
1687  
1688  
1689  
1690  
1691  
1692  
1693  
1694  
1695  
1696  
1697  
1698  
1699  
1700  
1701  
1702  
1703  
1704  
1705  
1706  
1707  
1708  
1709  
1710  
1711  
1712  
1713  
1714  
1715  
1716  
1717  
1718  
1719  
1720  
1721  
1722  
1723  
1724  
1725  
1726  
1727  
1728  
1729  
1730  
1731  
1732  
1733  
1734  
1735  
1736  
1737  
1738  
1739  
1740  
1741  
1742  
1743  
1744  
1745  
1746  
1747  
1748  
1749  
1750  
1751  
1752  
1753  
1754  
1755  
1756  
1757  
1758  
1759  
1760  
1761  
1762  
1763  
1764  
1765  
1766  
1767  
1768  
1769  
1770  
1771  
1772  
1773  
1774  
1775  
1776  
1777  
1778  
1779  
1780  
1781  
1782  
1783  
1784  
1785  
1786  
1787  
1788  
1789  
1790  
1791  
1792  
1793  
1794  
1795  
1796  
1797  
1798  
1799  
1800  
1801  
1802  
1803  
1804  
1805  
1806  
1807  
1808  
1809  
1810  
1811  
1812  
1813  
1814  
1815  
1816  
1817  
1818  
1819  
1820  
1821  
1822  
1823  
1824  
1825  
1826  
1827  
1828  
1829  
1830  
1831  
1832  
1833  
1834  
1835  
1836  
1837  
1838  
1839  
1840  
1841  
1842  
1843  
1844  
1845  
1846  
1847  
1848  
1849  
1850  
1851  
1852  
1853  
1854  
1855  
1856  
1857  
1858  
1859  
1860  
1861  
1862  
1863  
1864  
1865  
1866  
1867  
1868  
1869  
1870  
1871  
1872  
1873  
1874  
1875  
1876  
1877  
1878  
1879  
1880  
1881  
1882  
1883  
1884  
1885  
1886  
1887  
1888  
1889  
1890  
1891  
1892  
1893  
1894  
1895  
1896  
1897  
1898  
1899  
1900  
1901  
1902  
1903  
1904  
1905  
1906  
1907  
1908  
1909  
1910  
1911  
1912  
1913  
1914  
1915  
1916  
1917  
1918  
1919  
1920  
1921  
1922  
1923  
1924  
1925  
1926  
1927  
1928  
1929  
1930  
1931  
1932  
1933  
1934  
1935  
1936  
1937  
1938  
1939  
1940  
1941  
1942  
1943  
1944  
1945  
1946  
1947  
1948  
1949  
1950  
1951  
1952  
1953  
1954  
1955  
1956  
1957  
1958  
1959  
1960  
1961  
1962  
1963  
1964  
1965  
1966  
1967  
1968  
1969  
1970  
1971  
1972  
1973  
1974  
1975  
1976  
1977  
1978  
1979  
1980  
1981  
1982  
1983  
1984  
1985  
1986  
1987  
1988  
1989  
1990  
1991  
1992  
1993  
1994  
1995  
1996  
1997  
1998  
1999  
2000  
2001  
2002  
2003  
2004  
2005  
2006  
2007  
2008  
2009  
2010  
2011  
2012  
2013  
2014  
2015  
2016  
2017  
2018  
2019  
2020  
2021  
2022  
2023  
2024  
2025  
2026  
2027  
2028  
2029  
2030  
2031  
2032  
2033  
2034  
2035  
2036  
2037  
2038  
2039  
2040  
2041  
2042  
2043  
2044  
2045  
2046  
2047  
2048  
2049  
2050  
2051  
2052  
2053  
2054  
2055  
2056  
2057  
2058  
2059  
2060  
2061  
2062  
2063  
2064  
2065  
2066  
2067  
2068  
2069  
2070  
2071  
2072  
2073  
2074  
2075  
2076  
2077  
2078  
2079  
2080  
2081  
2082  
2083  
2084  
2085  
2086  
2087  
2088  
2089  
2090  
2091  
2092  
2093  
2094  
2095  
2096  
2097  
2098  
2099  
2100  
2101  
2102  
2103  
2104  
2105  
2106  
2107  
2108  
2109  
2110  
2111  
2112  
2113  
2114  
2115  
2116  
2117  
2118  
2119  
2120  
2121  
2122  
2123  
2124  
2125  
2126  
2127  
2128  
2129  
2130  
2131  
2132  
2133  
2134  
2135  
2136  
2137  
2138  
2139  
2140  
2141  
2142  
2143  
2144  
2145  
2146  
2147  
2148  
2149  
2150  
2151  
2152  
2153  
2154  
2155  
2156  
2157  
2158  
2159  
2160  
2161  
2162  
2163  
2164  
2165  
2166  
2167  
2168  
2169  
2170  
2171  
2172  
2173  
2174  
2175  
2176  
2177  
2178  
2179  
2180  
2181  
2182  
2183  
2184  
2185  
2186  
2187  
2188  
2189  
2190  
2191  
2192  
2193  
2194  
2195  
2196  
2197  
2198  
2199  
2200  
2201  
2202  
2203  
2204

## BRIEF DESCRIPTION OF THE DRAWINGS

- Figure 1 is a flowchart illustrating a method of managing finances in accordance with an embodiment of the present invention;
- 5 Figure 2 is an exemplary hardware configuration associated with the present invention;
- Figure 2A is a flowchart that illustrates a method for balancing attainment of financial goals in accordance with an embodiment of the present invention;
- 10 Figure 3 is a flowchart illustrating a method for targeting advertising in a financial manager in accordance with an embodiment of the present invention;
- 15 Figure 4 is a flowchart illustrating a method for providing customized financial instruments in a financial manager in accordance with an embodiment of the present invention;
- Figure 5 is a flowchart illustrating a method for obtaining user profile information in a financial manager in accordance with an embodiment of the present invention;
- 20 Figure 6 illustrates a method for providing a financial manager user interface in accordance with an embodiment of the present invention;
- 25 Figure 7 illustrates an exemplary user interface including a plurality of images for carrying out the method of Figure 6 in accordance with an embodiment of the present invention;
- 30 Figure 8 illustrates the manner in which the images fade inversely proportional to the duration of time budgeted for attaching the financial goal in accordance with an embodiment of the present invention;

Figure 9 illustrates a feature wherein the control panel is temporarily replaced by a summary of the changes to the goals in accordance with an embodiment of the present invention;

5

Figure 10 illustrates a financial assumptions frame which is displayed upon selection of a financial assumptions button of the main frame in accordance with an embodiment of the present invention;

- 10 Figure 11 illustrates a personal profile frame which is displayed upon selection of a personal profile button of the main frame in accordance with an embodiment of the present invention;

- 15 Figures 12, 12A, 12B, and 12C illustrate an interactive pricing site which allows a user to select options and pricing for a desired vehicle in accordance with an embodiment of the present invention;

- Figure 13 is a flowchart illustrating a method for brokering and outsourcing in a financial manager in accordance with an embodiment of the present invention; and

20

Figure 14 is a flowchart illustrating a method for providing default profiles for a financial manager in accordance with an embodiment of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 is a flowchart illustrating a method of managing finances in accordance with one embodiment of the present invention. First, in operation 100, a plurality of  
5 financial goals are presented to a user. The goals may be previously selected by the user or may include a default set of goals, for example. The user is then permitted to adjust preferences related to a selected one or more of the financial goals. See operation 102. An impact on attaining some or all of the financial goals is determined based on the adjusted preferences, as indicated in operation 104. Then,  
10 in operation 106, impact on attaining the financial goals is then displayed to the user.

In one aspect of the present invention, information about the user is received and used to provide a basis for the financial goals of the user. Such information about  
15 the user may include information relating to at least one of: a name of the user, age of the user, location of the user (such as the city of residence), marital status of the user (married, single, or divorced), housing status of the user (own or rent), income of the user, and/or number of dependents of the user (such as how many children the user has).

20 In another aspect of the presenting invention, the financial goals include at least one of: a home, vehicle, monthly allowance and savings, planned furniture expenses, planned appliance purchases, vacation, children's education, and/or retirement home. It should be noted that the present invention need not be limited to financial  
25 goals, or any particular type of goal for that matter. Just by way of example, work goals, life-oriented goals, etc. may fall within the scope of the present invention.

As an option, the adjustment made to the preferences can include adjusting a degree of favoritism between time and quality by the user. In other words, if the user  
30 selects to favor a shorter time to achieve the goal more over the quality of the goal, then concessions in quality and improvements in time will tend to be made. In

contrast, if the user selects to favor quality more over time, then concessions in time and improvements in quality will tend to be made.

5 As another option, the step of adjusting preferences includes adjusting a priority for the selected goal. By adjusting the priority higher, it makes it more likely that the user's expectations for the particular goal are met. However, it does not necessarily mean that the user will get the most expensive option for that particular goal.

10 In yet another aspect of the present invention, an adjustment is made by the user to a time expectation for the amount of time expected to achieve the selected goal. The higher the time expectation, the sooner in time the user expects to achieve the selected goal. A quality expectation may be adjusted by the user for the degree of quality expected for the selected goal. The higher the quality expectation, the better the option wanted by the user. As an option, the impact on attaining the financial  
15 goals may include displaying a summary of changes in achieving the financial goals as a result of the adjusted preferences. Also optionally, a default profile may be selected and used as a basis for the financial goals.

20 The present invention thus provides a tool that allows one to navigate through a space of likely outcomes (i.e. goal configurations) from the much larger space of possible outcomes. This is enabled by modeling the tradeoffs one would likely make based on one's preferences. The user is better at recognizing outcomes they like than they are at accurately assessing their preferences. The iterative adjustment of their preferences provided by the present invention is a way to navigate to an  
25 outcome in a manner that they like.

The present invention provides a financial planner and portal that lets a user manage money. The present invention allows one to manage finances by adjusting goals and examining the impact on other goals. Goals may relate to any purpose toward  
30 which an endeavor is directed such as retirement, vacations, education, and home, to name a few.

In a case example of the present invention, a user may plan on getting a Camry in a year. The user may also indicate that he or she wants to upgrade to a BMW. Based on the preferences you've entered over time, the present invention readjusts other goals and graphically shows these other goals becoming easier or harder to obtain. In this case example, the user sees that he or she may have to wait six more months for the car, and go to Disney World instead of Club Med this year. The present invention thus shows which compromises need to be made to obtain goals, handles financing changes, and determines which transactions need to be made.

10

A preferred embodiment of a system in accordance with the present invention is preferably practiced in the context of a personal computer such as an IBM compatible personal computer, Apple Macintosh computer or UNIX based workstation. A representative hardware environment is depicted in Figure 2, which illustrates a typical hardware configuration of a workstation in accordance with a preferred embodiment having a central processing unit **210**, such as a microprocessor, and a number of other units interconnected via a system bus **212**. The workstation shown in Figure 2 includes a Random Access Memory (RAM) **214**, Read Only Memory (ROM) **216**, an I/O adapter **218** for connecting peripheral devices such as disk storage units **220** to the bus **212**, a user interface adapter **222** for connecting a keyboard **224**, a mouse **226**, a speaker **228**, a microphone **232**, and/or other user interface devices such as a touch screen (not shown) to the bus **212**, communication adapter **234** for connecting the workstation to a communication network (e.g., a data processing network) and a display adapter **236** for connecting the bus **212** to a display device **238**. The workstation typically has resident thereon an operating system such as the Microsoft Windows NT or Windows/95 Operating System (OS), the IBM OS/2 operating system, the MAC OS, or UNIX operating system. Those skilled in the art will appreciate that the present invention may also be implemented on platforms and operating systems other than those mentioned.

30



- A preferred embodiment is written using JAVA, C, and the C++ language and utilizes object oriented programming methodology. Object oriented programming (OOP) has become increasingly used to develop complex applications. As OOP moves toward the mainstream of software design and development, various
- 5 software solutions require adaptation to make use of the benefits of OOP. A need exists for these principles of OOP to be applied to a messaging interface of an electronic messaging system such that a set of OOP classes and objects for the messaging interface can be provided.
- 10 OOP is a process of developing computer software using objects, including the steps of analyzing the problem, designing the system, and constructing the program. An object is a software package that contains both data and a collection of related structures and procedures. Since it contains both data and a collection of structures and procedures, it can be visualized as a self-sufficient component that does not
- 15 require other additional structures, procedures or data to perform its specific task. OOP, therefore, views a computer program as a collection of largely autonomous components, called objects, each of which is responsible for a specific task. This concept of packaging data, structures, and procedures together in one component or module is called encapsulation.
- 20 In general, OOP components are reusable software modules which present an interface that conforms to an object model and which are accessed at run-time through a component integration architecture. A component integration architecture is a set of architecture mechanisms which allow software modules in different
- 25 process spaces to utilize each others capabilities or functions. This is generally done by assuming a common component object model on which to build the architecture. It is worthwhile to differentiate between an object and a class of objects at this point. An object is a single instance of the class of objects, which is often just called a class. A class of objects can be viewed as a blueprint, from which many
- 30 objects can be formed.

OOP allows the programmer to create an object that is a part of another object. For example, the object representing a piston engine is said to have a composition-relationship with the object representing a piston. In reality, a piston engine comprises a piston, valves and many other components; the fact that a piston is an element of a piston engine can be logically and semantically represented in OOP by two objects.

- OOP also allows creation of an object that “depends from” another object. If there are two objects, one representing a piston engine and the other representing a piston engine wherein the piston is made of ceramic, then the relationship between the two objects is not that of composition. A ceramic piston engine does not make up a piston engine. Rather it is merely one kind of piston engine that has one more limitation than the piston engine; its piston is made of ceramic. In this case, the object representing the ceramic piston engine is called a derived object, and it inherits all of the aspects of the object representing the piston engine and adds further limitation or detail to it. The object representing the ceramic piston engine “depends from” the object representing the piston engine. The relationship between these objects is called inheritance.
- When the object or class representing the ceramic piston engine inherits all of the aspects of the objects representing the piston engine, it inherits the thermal characteristics of a standard piston defined in the piston engine class. However, the ceramic piston engine object overrides these ceramic specific thermal characteristics, which are typically different from those associated with a metal piston. It skips over the original and uses new functions related to ceramic pistons. Different kinds of piston engines have different characteristics, but may have the same underlying functions associated with it (e.g., how many pistons in the engine, ignition sequences, lubrication, etc.). To access each of these functions in any piston engine object, a programmer would call the same functions with the same names, but each type of piston engine may have different/overriding implementations of functions behind the same name. This ability to hide different

implementations of a function behind the same name is called polymorphism and it greatly simplifies communication among objects.

With the concepts of composition-relationship, encapsulation, inheritance and

5 polymorphism, an object can represent just about anything in the real world. In fact, one's logical perception of the reality is the only limit on determining the kinds of things that can become objects in object-oriented software. Some typical categories are as follows:

- Objects can represent physical objects, such as automobiles in a traffic-flow  
10 simulation, electrical components in a circuit-design program, countries in an economics model, or aircraft in an air-traffic-control system.
- Objects can represent elements of the computer-user environment such as windows, menus or graphics objects.
- An object can represent an inventory, such as a personnel file or a table of  
15 the latitudes and longitudes of cities.
- An object can represent user-defined data types such as time, angles, and complex numbers, or points on the plane.

With this enormous capability of an object to represent just about any logically

20 separable matters, OOP allows the software developer to design and implement a computer program that is a model of some aspects of reality, whether that reality is a physical entity, a process, a system, or a composition of matter. Since the object can represent anything, the software developer can create an object which can be used as a component in a larger software project in the future.

25 If 90% of a new OOP software program consists of proven, existing components made from preexisting reusable objects, then only the remaining 10% of the new software project has to be written and tested from scratch. Since 90% already came from an inventory of extensively tested reusable objects, the potential domain from  
30 which an error could originate is 10% of the program. As a result, OOP enables software developers to build objects out of other, previously built objects.

- This process closely resembles complex machinery being built out of assemblies and sub-assemblies. OOP technology, therefore, makes software engineering more like hardware engineering in that software is built from existing components, which are available to the developer as objects. All this adds up to an improved quality of the software as well as an increased speed of its development.

- Programming languages are beginning to fully support the OOP principles, such as encapsulation, inheritance, polymorphism, and composition-relationship. With the advent of the C++ language, many commercial software developers have embraced OOP. C++ is an OOP language that offers a fast, machine-executable code. Furthermore, C++ is suitable for both commercial-application and systems-programming projects. For now, C++ appears to be the most popular choice among many OOP programmers, but there is a host of other OOP languages, such as Smalltalk, Common Lisp Object System (CLOS), and Eiffel. Additionally, OOP capabilities are being added to more traditional popular computer programming languages such as Pascal.

The benefits of object classes can be summarized, as follows:

- Objects and their corresponding classes break down complex programming problems into many smaller, simpler problems.
- Encapsulation enforces data abstraction through the organization of data into small, independent objects that can communicate with each other. Encapsulation protects the data in an object from accidental damage, but allows other objects to interact with that data by calling the object's member functions and structures.
- Subclassing and inheritance make it possible to extend and modify objects through deriving new kinds of objects from the standard classes available in the system. Thus, new capabilities are created without having to start from scratch.
- Polymorphism and multiple inheritance make it possible for different programmers to mix and match characteristics of many different classes and create specialized objects that can still work with related objects in predictable ways.

- Class hierarchies and containment hierarchies provide a flexible mechanism for modeling real-world objects and the relationships among them.
- Libraries of reusable classes are useful in many situations, but they also have some limitations. For example:
  - 5 • Complexity. In a complex system, the class hierarchies for related classes can become extremely confusing, with many dozens or even hundreds of classes.
  - Flow of control. A program written with the aid of class libraries is still responsible for the flow of control (i.e., it must control the interactions among all the objects created from a particular library). The programmer has to decide which
  - 10 functions to call at what times for which kinds of objects.
  - Duplication of effort. Although class libraries allow programmers to use and reuse many small pieces of code, each programmer puts those pieces together in a different way. Two different programmers can use the same set of class libraries to write two programs that do exactly the same thing but whose internal structure (i.e.,
  - 15 design) may be quite different, depending on hundreds of small decisions each programmer makes along the way. Inevitably, similar pieces of code end up doing similar things in slightly different ways and do not work as well together as they should.
- 20 Class libraries are very flexible. As programs grow more complex, more programmers are forced to reinvent basic solutions to basic problems over and over again. A relatively new extension of the class library concept is to have a framework of class libraries. This framework is more complex and consists of significant collections of collaborating classes that capture both the small scale
- 25 patterns and major mechanisms that implement the common requirements and design in a specific application domain. They were first developed to free application programmers from the chores involved in displaying menus, windows, dialog boxes, and other standard user interface elements for personal computers.
- 30 Frameworks also represent a change in the way programmers think about the interaction between the code they write and code written by others. In the early

- days of procedural programming, the programmer called libraries provided by the operating system to perform certain tasks, but basically the program executed down the page from start to finish, and the programmer was solely responsible for the flow of control. This was appropriate for printing out paychecks, calculating a
- 5 mathematical table, or solving other problems with a program that executed in just one way.

- The development of graphical user interfaces began to turn this procedural programming arrangement inside out. These interfaces allow the user, rather than
- 10 program logic, to drive the program and decide when certain actions should be performed. Today, most personal computer software accomplishes this by means of an event loop which monitors the mouse, keyboard, and other sources of external events and calls the appropriate parts of the programmer's code according to actions that the user performs. The programmer no longer determines the order in which
- 15 events occur. Instead, a program is divided into separate pieces that are called at unpredictable times and in an unpredictable order. By relinquishing control in this way to users, the developer creates a program that is much easier to use. Nevertheless, individual pieces of the program written by the developer still call libraries provided by the operating system to accomplish certain tasks, and the
- 20 programmer must still determine the flow of control within each piece after it's called by the event loop. Application code still "sits on top of" the system.

- Even event loop programs require programmers to write a lot of code that should not need to be written separately for every application. The concept of an
- 25 application framework carries the event loop concept further. Instead of dealing with all the nuts and bolts of constructing basic menus, windows, and dialog boxes and then making these things all work together, programmers using application frameworks start with working application code and basic user interface elements in place. Subsequently, they build from there by replacing some of the generic
- 30 capabilities of the framework with the specific capabilities of the intended application.

Application frameworks reduce the total amount of code that a programmer has to write from scratch. However, because the framework is really a generic application that displays windows, supports copy and paste, and so on, the programmer can also

5 relinquish control to a greater degree than event loop programs permit. The framework code takes care of almost all event handling and flow of control, and the programmer's code is called only when the framework needs it (e.g., to create or manipulate a proprietary data structure).

- 10 A programmer writing a framework program not only relinquishes control to the user (as is also true for event loop programs), but also relinquishes the detailed flow of control within the program to the framework. This approach allows the creation of more complex systems that work together in interesting ways, as opposed to isolated programs, having custom code, being created over and over again for
- 15 similar problems.

Thus, as is explained above, a framework basically is a collection of cooperating classes that make up a reusable design solution for a given problem domain. It typically includes objects that provide default behavior (e.g., for menus and

20 windows), and programmers use it by inheriting some of that default behavior and overriding other behavior so that the framework calls application code at the appropriate times.

There are three main differences between frameworks and class libraries:

- 25 • Behavior versus protocol. Class libraries are essentially collections of behaviors that you can call when you want those individual behaviors in your program. A framework, on the other hand, provides not only behavior but also the protocol or set of rules that govern the ways in which behaviors can be combined, including rules for what a programmer is supposed to provide versus what the
- 30 framework provides.

- Call versus override. With a class library, the code the programmer instantiates objects and calls their member functions. It's possible to instantiate and call objects in the same way with a framework (i.e., to treat the framework as a class library), but to take full advantage of a framework's reusable design, a programmer typically writes code that overrides and is called by the framework. The framework manages the flow of control among its objects. Writing a program involves dividing responsibilities among the various pieces of software that are called by the framework rather than specifying how the different pieces should work together.
- Implementation versus design. With class libraries, programmers reuse only implementations, whereas with frameworks, they reuse design. A framework embodies the way a family of related programs or pieces of software work. It represents a generic design solution that can be adapted to a variety of specific problems in a given domain. For example, a single framework can embody the way a user interface works, even though two different user interfaces created with the same framework might solve quite different interface problems.

Thus, through the development of frameworks for solutions to various problems and programming tasks, significant reductions in the design and development effort for software can be achieved. A preferred embodiment of the invention utilizes HyperText Markup Language (HTML) to implement documents on the Internet together with a general-purpose secure communication protocol for a transport medium between the client and the Newco. HTTP or other protocols could be readily substituted for HTML without undue experimentation. Information on these products is available in T. Berners-Lee, D. Connolly, "RFC 1866: Hypertext Markup Language - 2.0" (Nov. 1995); and R. Fielding, H. Frystyk, T. Berners-Lee, J. Gettys and J.C. Mogul, "Hypertext Transfer Protocol -- HTTP/1.1: HTTP Working Group Internet Draft" (May 2, 1996). HTML is a simple data format used to create hypertext documents that are portable from one platform to another. HTML documents are SGML documents with generic semantics that are appropriate for representing information from a wide range of domains. HTML has been in use by the World-Wide Web global information initiative since 1990. HTML is an



application of ISO Standard 8879; 1986 Information Processing Text and Office Systems; Standard Generalized Markup Language (SGML).

To date, Web development tools have been limited in their ability to create dynamic

- 5 Web applications which span from client to server and interoperate with existing computing resources. Until recently, HTML has been the dominant technology used in development of Web-based solutions. However, HTML has proven to be inadequate in the following areas:
  - Poor performance;
  - 10 • Restricted user interface capabilities;
  - Can only produce static Web pages;
  - Lack of interoperability with existing applications and data; and
  - Inability to scale.
- 15 Sun Microsystem's Java language solves many of the client-side problems by:
  - Improving performance on the client side;
  - Enabling the creation of dynamic, real-time Web applications; and
  - Providing the ability to create a wide variety of user interface components.
- 20 With Java, developers can create robust User Interface (UI) components. Custom "widgets" (e.g., real-time stock tickers, animated icons, etc.) can be created, and client-side performance is improved. Unlike HTML, Java supports the notion of client-side validation, offloading appropriate processing onto the client for improved performance. Dynamic, real-time Web pages can be created. Using the above-
- 25 mentioned custom UI components, dynamic Web pages can also be created.

Sun's Java language has emerged as an industry-recognized language for "programming the Internet." Sun defines Java as: "a simple, object-oriented, distributed, interpreted, robust, secure, architecture-neutral, portable, high-

- 30 performance, multithreaded, dynamic, buzzword-compliant, general-purpose programming language. Java supports programming for the Internet in the form of

- platform-independent Java applets." Java applets are small, specialized applications that comply with Sun's Java Application Programming Interface (API) allowing developers to add "interactive content" to Web documents (e.g., simple animations, page adornments, basic games, etc.). Applets execute within a Java-compatible browser (e.g., Netscape Navigator) by copying code from the server to client. From a language standpoint, Java's core feature set is based on C++. Sun's Java literature states that Java is basically, "C++ with extensions from Objective C for more dynamic method resolution."
- 10 Another technology that provides similar function to JAVA is provided by Microsoft and ActiveX Technologies, to give developers and Web designers wherewithal to build dynamic content for the Internet and personal computers. ActiveX includes tools for developing animation, 3-D virtual reality, video and other multimedia content. The tools use Internet standards, work on multiple
- 15 platforms, and are being supported by over 100 companies. The group's building blocks are called ActiveX Controls, small, fast components that enable developers to embed parts of software in hypertext markup language (HTML) pages. ActiveX Controls work with a variety of programming languages including Microsoft Visual C++, Borland Delphi, Microsoft Visual Basic programming system and, in the
- 20 future, Microsoft's development tool for Java, code named "Jakarta." ActiveX Technologies also includes ActiveX Server Framework, allowing developers to create server applications. One of ordinary skill in the art readily recognizes that ActiveX could be substituted for JAVA without undue experimentation to practice the invention.
- 25
- Four years from now 25% of U.S. households are expected to be using online banking and bill presentment. What will these applications be like? How can we expect them to change over time?
- 30 Personal Choice Point illustrates a potential direction for such applications and highlights new opportunities. Historically, financial applications have been limited

by the information they have had available and the actions they could effect. The result were applications that relied on user input for all their information, and produced only high level, long term plans for the user to implement, such as retirement savings recommendations.

5

Over time, the constraint on information access has eased, enabling new applications such as portfolio tracking. Similarly, we have witnessed tremendous growth in the repertoire of potential actions financial applications can perform on behalf of users – actions such as ordering payments, purchasing stocks and goods and entering bids in auctions.

10

Naturally, we have started to see applications that take advantage of progress in both of these dimensions. Stock trading web sites provide both volumes of information and the ability to execute trades. Many sites now exist that handle all aspects of a consumer's task, or "intention". Sites such as CarPoint will help a customer with all aspects of a car purchase, from identifying an appropriate car, to finding a good deal, to buying insurance, and obtaining a loan. Several travel sites, such as Travelocity, will provide similar service for planning vacations.

15

Personal Choice Point represents a natural progression of such applications. The above mentioned sites handle all aspects of a user's task, but do so in isolation. Personal Choice Point not only helps you address a particular task, but addresses the interactions and conflicts that arise between tasks over time. By focusing your attention on these issues, and taking over the nuts and bolts of day to day financing and individual transactions, Personal Choice Point allows you to think about what matters most: the lifestyle choices we all make.

20

25

### **Detailed Description of Operation**

The present invention redefines the relationship between financial services companies and consumers from account management to lifestyle management. The

30

present invention is a financial management application that works not just by using information about a user's finances, but by responding appropriately to a wealth of information about current, upcoming, and long-term goals and preferences. This information can be used for many applications that will now be set forth.

5

Figure **2A** is a flowchart that illustrates a method for balancing attainment of financial goals. First, in operation **200**, target advertising is provided in a financial manager executed on a computer. Next, in operation **202**, customized financial instruments are providing in the financial manager. Still yet, user profile information is obtained in the financial manager for facilitating the targeting advertising and providing customized financial instruments. See operation **204**. Further information will now be set forth regarding the foregoing operation in the following Figures **3-5**.

10

15

Figure **3** is a flowchart illustrating a method for targeting advertising in a financial manager in accordance with an embodiment of the present invention. Financial goals of a user are first received utilizing a network in operation **300**. The user may be a user of the network in operation **302**. In operation **304**, personal information about the user is subsequently received utilizing the network. The financial goals and personal information of the user are then matched with at least one offering for helping to achieve the financial goals of the user. See operation **306**. Information relating to the matched offering is transmitted to the user utilizing the network in operation **308**. Such information can include any manner of advertising, including but not limited to such things as: hyperlinks, browser banner advertisements, pop-up windows, facsimiles, etc.

20

25

Preferably, the user is allowed to adjust preferences related to attaining one or more of the financial goals of the user. More preferably, the adjusted preferences includes at least one of quality preference relating to the quality of the achieved financial goal preferred by the user, and a time preference relating to how soon the user prefers to achieve the financial goal.

30

As an option, at least one provider of the offering is notified when preferences relating to attaining one or more of the financial goals are changed by the user. As another option, the offering can include a product and/or a service for helping attain the financial goal. The products and services should also be matched to the adjusted preferences. Advertising relating to the offerings could also include promotions, sales, discounts, services available, offers for trade, etc.

In one aspect of the present invention, the financial goals of the user include future purchases made by the user. The financial goals include at least one of: a home, vehicle, monthly allowance and savings, planned furniture expenses, planned appliance purchases, vacation, children's education, and retirement home.

The present invention thus precisely market products and services to the right people at the right time in support of their intentions. Most immediately, if the present invention knows when a user intends to buy a car, it knows when the user needs a car loan. But ultimately the financial services company is now in the perfect position to provide the car itself – or any products and services associated with a goal - rather than just financing them.

Figure 4 is a flowchart illustrating a method for providing customized financial instruments in a financial manager. The invention includes receiving personal information regarding a user, and also receiving financial goals from the user that the user wishes to attain. See operations 400 and 402. Financial instruments are then generated for the user based on the personal information and financial goals of the user, and the generated financial instruments are delivered to the user. See operations 404 and 406, respectively.

An aspect of the present invention is that a network is utilized to deliver the generated financial instruments to the user. Another aspect of the invention is that the network is a wide area network capable of communicating using TCP/IP and

IPX protocol. In another embodiment of the invention the generated financial instrument is stored in a database so that it may be retrieved at a later time.

- 5 In yet another embodiment of the invention the user is permitted to adjust preferences in attaining the financial goals of the user, and includes the aspect that the generated financial instrument is further based on the adjusted preferences.

- 10 Another aspect of the invention is that the financial goals include at least one of: home, vehicle, monthly allowance and savings, planned furniture expenses, planned appliance purchases, vacation, children's education, and retirement home.

- 15 In another embodiment of the invention the user is charged a fee for delivering the generated financial instrument. Optionally, the user may receive a bill of the charged fee utilizing the network.

- 20 The present invention thus allows automatic creation of custom financial instruments. Since the present invention knows what a user needs, it can help design and sell novel financial instruments the customer wouldn't know to look for, or wouldn't bother to pursue.

- 25 Figure 5 is a flowchart illustrating a method for obtaining user profile information in a financial manager. First, in operation 500, personal information is obtained on a user. Next, in operation 502, the user is allowed to adjust preferences related to attaining one or more financial goals. An impact is subsequently obtained on attaining the financial goals from the adjustment of the preferences by the user. See operation 504. Then, in operation 506, a profile is then generated on the user based on the adjusted preferences and the personal information of the user. The profile on the user is then transmitted utilizing a network so that the profile may be utilized as market intelligence for another party. See operation 508.

In one embodiment of the present invention, the financial goals of the user include future purchases made by the user. Further, the profile on the user may include information relating to the order in which the user prefers to make the future purchases based on the adjusted preferences.

5

In another embodiment of the present invention, the preferences may include a quality preference relating to the quality of the achieved financial goal preferred by the user. The user may also adjust the quality preference either to a higher or lower preferred quality. For example, for the financial goal of a new automobile, the user may adjust the preferred quality between a preference for an economy car or a preference for a luxury car.

10

In still yet another embodiment of the present invention, the preferences may include a time preference relating to how soon the user prefers to achieve the financial goal. The user may adjust the time preference from a sooner or later preferred time of achieving the financial goal. For example, for the financial goal of a vacation, the user may adjust the preferred time between a preference for taking a vacation soon in time or later in time.

15

In one aspect of the present invention, the transmitted profile on the user may be stored in a database with profiles on other users so that a regional profiles and other regional marketing information may be developed. As an option, the transmitted profile information may be transmitted directly to third parties desiring the profile information. Further, the personal information of the user may include information relating to income or salary of the user.

20

In still another aspect of the present invention, the personal information of the user includes information relating to the age of the user. The personal information of the user may include information relating to the marital status of the user (i.e., married or single). Further, the personal information of the user may include information relating to the location where the user resides. As an option, the personal

25

11/23/2011 1:53:53 PM

information of the user may include information relating to a number of children of the user.

5 The present invention thus gathers market intelligence by generating unprecedented information on consumer preferences. The present invention has access not only to what consumers intend to buy, but also what they would consider buying under different conditions and how they trade off.

10 The present invention enables users to make financial decisions by negotiating tradeoffs between personal financial goals. The user interface represents different goals in one person's life, including their home, car, monthly allowance and savings, planned furniture purchase, planned appliance purchase (e.g. TV), vacation, children's education, and retirement home. The present invention allows one to select any of these goals and make adjustments to preferences for the selected goal.  
15 These preferences include the priority, expected quality, and expected schedule for attaining the goal. After adjusting the preferences for a selected goal the present invention reallocates funds between goals according to preferences. One can examine the resulting tradeoffs by viewing the changes, which are represented graphically on the screen. The intent is to illustrate a shift in the "conversation"  
20 between a financial institution and a customer. Instead of focusing on individual transactions, the present invention enables a lifestyle.

Figure 6 illustrates a method for providing a financial manager user interface. First, in operation 600, a plurality of images are displayed in a frame. Each of the images  
25 represent a financial goal of a user. In operation, the user is permitted to select from of the images in the frame, as indicated in operation 602. Further, a user is permitted to adjust preferences related to the financial goal represented by the selected image in the frame. See operation 604. The appearance of one or more of images in the frame is altered based on the adjusted preferences of the financial goal  
30 represented by the selected image in operation 606.



Figure 7 illustrates an exemplary user interface including a plurality of images 700 for carrying out the method of Figure 6 in accordance with one embodiment of the present invention. During use of the user interface, a user is permitted to adjust preferences related to the financial goal by first selecting one of the images 700.

- 5 For example, time indicia 702 is displayed for permitting the user to adjust a time expectation for the amount of time expected for achieving the financial goal represented by the selected image. As yet another example, priority indicia 704 is displayed for permitting the user to adjust a level of priority for achieving the financial goal represented by the selected image.

10

In use, the lower the priority selected for the goal, the more transparent or faded the selected image 700 appears. This is to symbolize to the user that attainment of the financial goal is further away in time. In contrast, the higher the priority selected for the financial goal, the less transparent or more filled in the selected image becomes. As illustrated in Figure 7, the displayed image 700 may be a slidable or scalable bar so that increasing the level of the bar increases the time expectation and decreasing the level of the bar decreases the time expectation for the financial goal.

15

- In another embodiment of the present invention, the user may be permitted to adjust preferences related to the financial goal. In particular, this may be accomplished by displaying quality indicia 706 for permitting the user to adjust a quality expectation for the degree of quality expected for the financial goal represented by the selected image. As an option, an appearance of the selected image may be altered in relation to the adjustment of the expectation with respect to quality for the financial goal. In the present embodiment, the lower the expected quality selected for the goal, an image for a lesser quality item appears to represent that a less luxurious or cheaper version of the goal. In contrast, the higher the quality selected for the financial goal, an image for a higher quality item appears to represent that a more luxurious or more expensive version of the goal. As illustrated in Figure 7, the displayed image may be a slidable or scalable bar so that increasing the level of the bar
- 20
- 25
- 30

increases the quality expectation and decreasing the level of the bar decreases the quality expectation for the financial goal.

5 In still another embodiment of the present invention, the user may be permitted to adjust preferences adjusting a degree of favoritism between time and quality with respect to the financial goal of the selected image. As illustrated in Figure 7, priority indicia **708** may be a slidable or scalable bar so that moving the level of the bar towards the quality side of the bar increases the favoring of quality while decreasing the favoring of time while moving the level of the bar towards the time  
10 side of the bar increases the favoring of time while decreasing the favoring of quality. It should be noted that the indicia **702-710** is situated on a control panel **711**.

Users may thus adjust their expectations for time and quality, how important a goal  
15 is (the priority), and the extent to which they prefer to trade off time versus quality for a given goal. The indicia **708** may take the form of a slider that allows the user to set the degree to which they favor time versus quality by adjusting the slider to a position between the two extremes (labeled "time" and "quality"). Settings closer to quality will tend to make concessions on time and improvements on quality, and, of  
20 course, the reverse for settings closer to time. The priority of a goal determines how much effort should be made to ensure the user gets their way in that particular goal. Note that the users expectations may be low. A higher priority simply makes it more likely that the users expectations will be met, not that they'll get the most expensive option.

25 For any given goal, the user can select their expectations for quality and time using the two sliders under the "*I expect*" label. In each case higher is "better" – that is, for time, the higher the expectation, the sooner one wants it. For quality, the higher the expectation, the better the option one wants.

During use, the demo is preset with one person's goals and a range of options for each goal. Tradeoffs may be of two types: First the *quality* of an option might change (e.g. a better or worse house may appear). Secondly, the *time of attainment* for a goal may change (e.g. the time it takes to get a car may go up or down). As set forth earlier, changes in the time of attainment are reflected in changes in the transparency of the goal in question. For example, the longer it takes to attain a car, the more it fades away (i.e. becomes more transparent).

An interaction with the present invention is a continuous process of selecting a goal, adjusting preferences for that goal, and examining the resulting tradeoffs. The user continues this process until they arrive at a set of choices with which they are most comfortable.

In one exemplary embodiment of the present invention, the images 700 representing financial goals of a user may include a first image 712 such as an image of a house for representing a home financial goal, a second image 714 such as an image of a vehicle for representing a vehicle financial goal, a third image such as an image of a ATM 716 for representing a monthly allowance and savings financial goal, a fourth image 718 such as an image of furniture for representing a planned furniture expenses financial goal, a fifth image 720 such as an image of television for representing a planned appliance expenses financial goal, a sixth image 722 such as an image of a vacation spot for representing a vacation financial goal, a seventh image 724 such as an image of a college for representing a children's education financial goal.

During operation, the appearance of one of the images representing a financial goal may fade a shade inversely proportional to the duration of time budgeted for attaching the financial goal. In other words, the longer the duration it will take to obtain the financial goal, the more faded the image representing the financial goal becomes while conversely, the sooner the financial goal will be attained the more filled in or less faded the image for that financial goal will become. Figure 8

illustrates the manner in which the images fade inversely proportional to the duration of time budgeted for attaching the financial goal. Specifically, the first image **712** of the house in Figure **8** is shown to fade with respect to Figure **7**.

- 5 The main screen area is used to display the goals in a way that reflects the impact of a user's decisions. The more transparent the goal, the further away in time. Selecting the goal will display the precise waiting time along the top part of the screen. The specific picture used to depict a goal corresponds to an option of a certain quality level. For example, cars range from a Honda Civic to a BMW,
- 10 Vacations from camping to Paris, etc. These selections will change depending on the way the user values different goals.

- Whenever a change is made, adjustments are made to the goals. At times the readjustment may result in no new changes, but typically adjustments result in one
- 15 or more changes to other goals. Quality changes are displayed first and appear as animated changes to the choices for the given goal. Goals whose time of attainment change will flash after the quality changes have been shown. Their degree of transparency will change to reflect the new expected time of attainment.
- 20 After making a change, a written summary of changes cycles through the control panel area. The control panel can be accessed by simply clicking anywhere outside the boxed area of changes. Clicking within the box will advance to the next screen of changes.
- 25 In order to select a goal, a user may click on the same. The selected goal is highlighted and its current option settings are displayed across the top bar of the window. The controls on the bottom of the screen in the control panel (indicia **704-708**) govern the selected goal.

- 30 As set forth earlier, users can explore decisions by adjusting the preferences of their goals using the controls and viewing the resulting changes. Resulting changes to

goals are observable on the main screen, and are summarized in the control panel window below.

Figure 9 illustrates a feature wherein the control panel **711** is temporarily replaced by a summary **900** of the changes to the goals. In particular, when user actions result in changes to other goals (i.e. when tradeoffs are made), the control panel is temporarily replaced by a summary of the changes to the goals. One can cycle through the list of changes manually by clicking within the control panel region, otherwise the changes will cycle on their own after a few seconds. To retrieve the control panel, one need simply to click anywhere outside the box listing the goal changes.

Whether the control panel **711** is shown or not, the bottom right hand of the application may include a series of navigation buttons **902**. As an illustration, the navigation buttons **902** may include arrow keys - back & forwards **904**, face icon **906**, a question mark icon **908**, and selectable link **910**.

In an aspect of the present invention, the arrow keys **904** may be utilized to cycle through the various financial goals. For example, repeated selection of the forward arrow may allow a user to move from the vacation financial goal, to the home financial goal, and then to the car financial goal.

In another aspect of the present invention, the face icon button **906** may serve as a selective link to a personal profile frame **1100** such as the type discussed in Figure 11. In a further aspect of the present invention, the globe button **910** may serve as a selective link to a financial assumption frame **1000** such as the type discussed in Figure 10. In yet another aspect of the present invention, the question mark button **908** may serve as a selective link to a help frame to provide help information to a user.

Figure 10 illustrates a financial assumptions frame 1000 which is displayed upon selection of the financial assumption button 910 of the main frame in accordance with an embodiment of the present invention. In this frame 1000, one or more financial assumptions may be generated which, in turn, may be used in the calculations for determining the impact on attaining the financial goals of the user. As illustrated in Figure 10, illustrative financial assumption may include the current salary 1002 of a user, expected rate increase in salary 1004, rate of return on savings 1006, risk tolerance of the user (low, medium or high) 1008, calculation date 1010, and expected inflation rates 1012 for each of the financial goals (i.e., expected inflation rates for college education, toys (such as electronics, sporting goods, and other non-essential goods), allowance, retirement, savings, furniture, home, automobile, and vacation). In one embodiment, the user may be permitted to adjust these financial assumptions. In another embodiment, the user may be able to import relevant information into the financial assumptions from various applications including financial management and planning application such as, for example, Quicken and Turbo Tax.

As an option, the financial assumptions frame 1000 may include a return selectable link 1014 for displaying the main frame (such as the one illustrated in Figure 7) upon selection thereof.

Figure 11 illustrates a personal profile frame 1100 which is displayed upon selection of a personal profile button of the main frame in accordance with an embodiment of the present invention. The profile screen is accessed through the button with the face icon 906 of Figure 9. This screen is intended to illustrate the way information can be entered initially. Rather than relying on the user to enter all information, they can choose from a library of demographic profiles that are likely to contain similar goals and options.

In one aspect of the present invention, a personal profile frame is displayed along with the personal profile frame upon selection of a selectable link 910. A personal

profile of the user may also be displayed in the personal profile frame. The financial assumptions are displayed in the financial assumptions frame. As an option, a summary of changes in achieving the financial goals as a result of the adjust preferences may be displayed in the frame.

5

Figures 12, 12A, 12B, and 12C illustrates an interactive pricing site 1200 which allows a user to select options and pricing for a desired vehicle in accordance with an embodiment of the present invention. In an illustrative embodiment of the present invention, this frame permits the integrating of a car dealer's web where the user may configure a car as desired by selecting various options 1202 (see Figures 12A and 12B) and then incorporate these selected options into a desired car 1204 for the automobile financial goal via an automobile frame 1206 as shown in Figure 12C.

10

15

With continuing reference to Figure 12C, in an embodiment of the present invention, the automobile frame 1206 may be accessed upon selection of the auto financial goal 714 on the main frame, such as by double clicking on the auto financial goal image 714. In one aspect of the present invention, the automobile frame 1206 may include an option range sub-frame 1208 which displays the automobiles that the user may desire to attain, and a costs sub-frame 1210 which displays cost associated with one of the cars selected in the option range sub-frame 1208 (such as the Saturn model car, for example, as illustrated in Figure 12C). In aspects of the present invention, the automobile frame 1206, may also include a preferred replacement schedule sub-frame 1212, a slidable optional desirability bar 1214, a preferred insurance provider pull-down menu 1216, and a preferred options sub-frame 1218 which displays options desired by the user for the selected auto model. As a further option, the automobile frame 1206 may also include a return selectable link 1220 for returning the user to the main frame upon selection thereof.

20

25

The automobile frame 1206 may also include add and delete buttons 1222, 1224 for adding and removing auto models from the option range sub-frame 1208. In one

30

embodiment of the present invention, a user wishing to add an automobile model to the option range sub-frame 1208 may select the add button 1222, (which may be linked to the interactive pricing site 1200) to thereby display the interactive pricing site 1200 so that the user can configure a car model as desired. Further, upon  
5 selection of the delete button 1224, a highlighted auto model (such as the Saturn model as illustrated in Figure 12C) may be removed from the option range sub-frame 1208 by the user.

Figure 13 is a flowchart illustrating a method for brokering and outsourcing in a  
10 financial manager. First, in operation 1300, at least one financial goal is displayed to a user such as a goal of obtaining a new car. The financial goal has an option range includes at least one option for the goal. For example, in the goal for obtaining a new car, the options may comprise different models of cars that the user may wish to obtain such as a Honda Civic, a Toyota Camry, or a BMW 540i.  
15 Subsequently, in operation 1302, the user is permitted to add an additional option to the option range of the financial goal such a new model of car such as a Saturn SL. The user is further permitted to adjust one or more preferences relating to attaining the financial goal. See operation 1304. Also, one of the options of the option range of the financial goal may be selected based on the adjusted preference. This  
20 selection is done by determining which option in the option range best fits the preferences of this option and the preferences for the other financial goals of the user. Such selected option may also be displayed to the user. See operation 1306.

In one embodiment of the present invention, the step of adding an additional option  
25 to the option range of the financial goal further includes selecting a provider such as an automobile manufacture like Saturn, and selecting an option provided by the selected provider such as, for example a Saturn SL. The selected option is then added to the option range of the financial goal. As an option, the selected provider may be selected from a list of a plurality of providers (e.g., a list of automobile  
30 manufactures).



In another embodiment of the present invention, features for the selected option may be added. For example, armrest and security system features may be added to the selected car model. A user-inputted replacement schedule may be provided for replacing the financial goal. Such replacement schedule may include a duration of  
5 time that the goal is expected to be held by the user before replacement. The user may also be permitted to select an insurance provider from a list of insurance providers for insuring the financial goal. As an option, features of the selected option for the financial goal may be displayed.

- 10 In one aspect of the present invention, the user may be permitted to select an option desirability for the selected option to reflect the user's desirably in obtaining the selected option. Further, the financial goal may be selected from at least one of: home, vehicle, monthly allowance and savings, planned furniture expenses, planned appliance purchases, vacation, children's education, and retirement home.

- 15 Figure 14 is a flowchart illustrating a method for providing default profiles for a financial manager. First, in operation 1400, a plurality of predetermined standardized profiles are displayed to a user in a list. The user is permitted to select one of the predetermined standardized profiles. See operation 1402. Further, in  
20 operation 1404, a plurality of financial goals may be presented to the user. An impact on attaining the financial goals from the selected predetermined profile is first determined in operation 1406. The impact on the financial goals is then displayed to the user in operation 1408. It should be noted that such impact may refer to reporting the changes to the user's goals or just on the underlying financial situation (i.e. reporting the impact on the user's life rather than his or her accounts).  
25

In one embodiment of the present invention, the user is permitted to modify the predetermined profile to more accurately fit the user's personal profile. Initial profile information is first received from a user. As an option, the predetermined standardized profiles that are displayed in the list may be dependant on the information received from the user.

In another embodiment of the present invention, the initial profile information of the user includes information relating to a location where the user resides. The initial profile information of the user may also include information relating to a marital status of the user selection from at least one of married and single. As an option, the initial profile information of the user may include information regarding whether the user rents or owns a residence. Further, the initial profile information of the user may include information regarding a number of dependants of the user.

In still another embodiment of the present invention, at least one financial assumption may be generated, and the impact on attaining the financial goals may include a determination as to the impact on the financial assumptions on attaining the financial goals. The financial assumptions may include current salary, expected rate increase in salary, rate of return on savings, risk tolerance of the user (low, medium or high), calculation date, and expected inflation rates for each of the financial goals (i.e., expected inflation rates for college education, toys (such as electronics, sporting goods, and other non-essential goods), allowance, retirement, savings, furniture, home, automobile, and vacation). In one embodiment, the user is permitted to adjust the financial assumptions.

A case scenario of use of the present invention will now be set forth below in Example I:

#### 15 EXAMPLE I

Let's say you're used to driving a Camry and you're considering buying a BMW. How do you know if you can afford it?

20 More generally, how do you know if you can afford something?

Well, you could turn to Quicken.

But what does Quicken do for you? They basically took my checkbook and put it on the screen. It's incredibly useful in lots of ways, and has lots of fancy features, but does it answer my question?

5 After all, there's a sense in which if I really want it, I can probably afford most purchases I would bother to seriously consider.

But think about it. It's not about numbers. It's about the tradeoffs you'll have to make. Whether you can afford the car really depends on the kinds of compromises you'll have to make in other areas of your life. Will you still be able to go on vacation this Christmas? The monthly car figures just can't tell you.

10

So deciding you can afford something is really a question of determining what the tradeoffs are, and deciding you're comfortable with them.

15

Personal Choice Point is an approach to managing your money with just this idea in mind.

*{Show the application}*

20 Rather than focus on individual transactions, Personal Choice Point allows you to manage your finances by adjusting your goals and examining the impact on other goals – goals like those you see here – housing, vacation, savings, retirement, and so on. These are just those that might correspond to one typical person.

25 Personal Choice Point hides the finances and the numbers and basically lets me see what's possible with what I have and what I want. The focus changes from my accounts, to my life.

*{Click on the Car picture}*

30

Right now, based on my preferences, I'm set to get a Camry in 40 months, but suppose I want to get a BMW. At an earlier point I'd specified the range of cars I'd consider getting. So now I can raise my quality expectations for cars.

35 *{Raise the quality expectation ("The Best" slider) to the highest point}*

So now we see a number of changes have taken place. We see we're getting our BMW, but we've had to make sacrifices in other areas.

We see, for example, that the house is starting to fade away, that means we have to wait longer for it. And notice that now we're going camping when before we were going to Club Med. A summary of the changes is listed down here. Note that these changes are not financial changes, they're changes to my lifestyle.

So can we afford the car? Well, if we're satisfied with these tradeoffs then yes. Otherwise, we either can't afford the car, or we can try to find a set of tradeoffs we are comfortable with. For example, I may really want to go on that beach vacation.

*{Click outside the changes box on the bottom to retrieve the control panel}*

So let's raise the priority of the vacation.

*{Click on the vacation – should be camping now - to select it }*

*{Click very high on the priority to raise the priority of vacation }*

Now we see we got our beach vacation back...

*{Click the space bar to toggle the highlighting}*

...but the house is getting either further away. So we can continue this until we find an outcome we're happy with, or – as most of us wind up having to do – the one we're most willing to live with...

So why would a financial services company care about this? Or a products company? Or any company for that matter?

Well for one, There's an incredible amount of information about the user here. Personal Choice Point would provide an unprecedented wealth of data not just on what consumers intend to buy, but on what they would consider buying, and, in effect, the financial conditions under which they would do so. This enables both very precise marketing to individuals and insight into markets for various products. If I know you're buying a Camry in 15 months, then I know when you'll need a car loan.

The present invention is thus a tool that both manages and executes these various purchases and transactions. That is, a financial services company might offer the present invention to a consumer as a lifestyle management service through which their various goals are supported. If a consumer adhered to the plans designed through the present invention, the company might even guarantee the products and services specified. The consumer need not worry about the particular financial instruments required to achieve the lifestyle in question. At this point the financial services company is arguably in a position to create and sell a wide array of new instruments that need not be individually marketed to consumers. At the same time, they become demand aggregators and will be in a position to negotiate with products and service providers on behalf of their customers. They will have inserted themselves right in the critical path for decision making in many of the crucial aspects of the consumers life.

Ultimately, the conversation between the company and customer changes from being about transactions and balances, to being about goals and lifestyles. In effect, we believe that in the long run, applications such as these will enable financial services to compete on their ability to enable and provide desired lifestyles, rather than marginally better interest rates. The possibilities are endless.

#### Outsourcing/Intentional networks:

This portion is intended to expand upon and illustrate the potential to include third party product and service providers.

Now, of course no one company will provide all the products and services in everyone's life. What we expect is that the financial services company that deploys such a tool will be in a position to broker and outsource the various goals. For example, let's take a closer look at the car;

*{Double-click on the car -- Should go to an Automobile options screen}*

Here we see the range of options we've specified for our car. We see, for example, that in order of increasing desirability we've indicated a Civic, Camry, and BMW 540. Now suppose we want to replace the Civic with another modest choice, a Saturn. So we'll delete the Civic:

*{Highlight the "Honda Civic" in the option range List Box and then click "Delete"}*

Now we'll add the Saturn:

*{Click on "Add" button. A dialog will popup to enable you to select a manufacturer.  
5 Scroll down list of manufacturers by clicking repeatedly on down arrow at bottom of select  
manufacturer dialog.  
Double click on Saturn. A window with Saturn's web site should pop up.}*

10 What we've done is illustrate this outsourcing potential by integrating the Saturn Web Site.  
We can now configure the Saturn we want on their site and incorporate these options into  
Personal Choice Point.

*{- Click on a few options: e.g. air conditioning, ABS, am/fm cassette...  
15 Scroll down and press "see your window sticker"}*

The options reflected here are now integrated into Personal Choice Point.

*{Close the Saturn window (click on "X" in upper right corner of Saturn Window)}*

20 These options are now listed under the preferred options window.

Of course this is a simple example, but the point is clear. Third party service and product  
providers can be included and their information taken into account in planning. By  
25 including these third party providers, the financial services company is now at the center of  
the transaction and becomes a broker for a wide variety of products and services.

*{Press return arrow on bottom right to return to main screen}*

Optional demo branch 2: Default Profiles

30 This branch illustrates how preferences are initially set.

Given the tremendous amount of information that's in here, people are often concerned that  
it would be too painful to enter in all this information. There are a number of ways to  
address this concern. First, let me admit that yes, there will be startup costs, but it won't be  
35 as bad as it may seem. First, consider that this is information that will be accumulated over  
time. Also, if we are working with third party product and service providers, we can  
incorporate many of your existing preferences directly from there. Thirdly, consider that  
your preferences are not really all that unique. In fact, their likely to correspond reasonably

closely to others like you. So rather than start from scratch, we can begin with a number of default profiles that you can alter.

5                   *{Click on profile button (button with face) on bottom right hand corner of main screen, click on different profiles to display}*

10                   These example profiles, for example, were taken from the Claritas corporation, a market research company, and describe different clusters of people in different socioeconomic situations. After all, my preferences are likely to be similar to others like me who live where I do and make what I make and are my age. What I would do at this point is select the profile that most closely matches me, and then modify the goals associated with that profile, rather than begin from scratch.

15                   Although only a few embodiments of the present invention have been described in detail herein, it should be understood that the present invention may be embodied in many other specific forms without departing from the spirit or scope of the invention. Therefore, the present examples and embodiments are to be considered as illustrative and not restrictive, and the invention is not to be limited to the details  
20                   given herein, but may be modified within the scope of the appended claims.

## CLAIMS

What is claimed is:

- 1 1. A method for balancing attainment of goals, comprising the steps of:
  - 2 (a) presenting a plurality of goals;
  - 3 (b) adjusting preferences related to one of the goals;
  - 4 (c) determining an impact on attaining the goals based on the adjusted
  - 5 preferences; and
  - 6 (d) displaying the impact on attaining the goals.
- 1 2. A method as recited in claim 1, further comprising the step of receiving  
2 information about a user; and wherein the goals are based on the received  
3 information.
- 1 3. A method as recited in claim 1, wherein the goals include at least one of:  
2 home, vehicle, monthly allowance and savings, planned furniture expenses,  
3 planned appliance purchases, vacation, children's education, and retirement  
4 home.
- 1 4. A method as recited in claim 1, wherein the step of adjusting preferences  
2 includes adjusting a degree of favoritism between time and quality.
- 1 5. A method as recited in claim 1, wherein the step of adjusting preferences  
2 includes adjusting a priority for the selected goal.
- 1 6. A method as recited in claim 1, wherein the step of adjusting preferences  
2 includes adjusting a time expectation for the amount of time expected for  
3 achieving the selected goal.



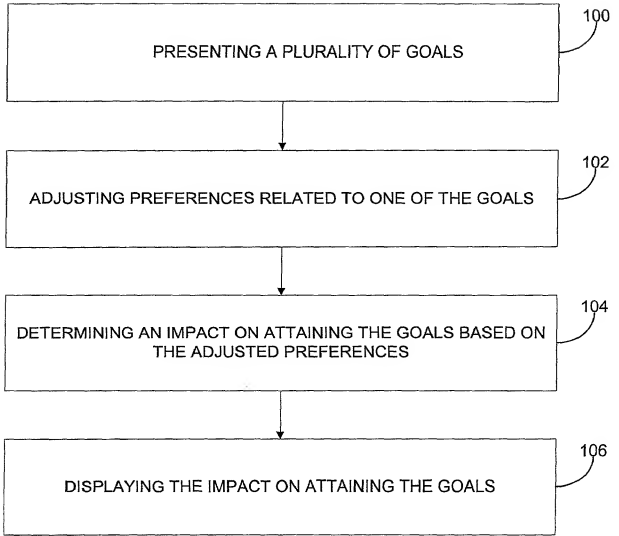
- 1 7. A method as recited in claim 1, wherein the step of adjusting preferences  
2 includes adjusting a quality expectation for the degree of quality expected for  
3 the selected goal.
- 1 8. A method as recited in claim 1, wherein the step of displaying the impact on  
2 attaining the goals includes displaying a summary of changes in achieving  
3 the goals as a result of the adjusted preferences.
- 1 9. A method as recited in claim 1, further comprising the step of selecting a  
2 default profile; and wherein the goals are based on the default profile.
- 1 10. A computer program embodied on a computer readable medium for  
2 balancing attainment of goals, comprising:  
3 (a) a code segment that presents a plurality of goals;  
4 (b) a code segment that adjusts preferences related to one of the goals;  
5 (c) a code segment that determines an impact on attaining the goals based on the  
6 adjusted preferences; and  
7 (d) a code segment that displays the impact on attaining the goals.
- 1 11. A computer program as recited in claim 10, further comprising a code  
2 segment that receives information about a user; and wherein the goals are  
3 based on the received information.
- 1 12. A computer program as recited in claim 10, wherein the goals include at least  
2 one of: home, vehicle, monthly allowance and savings, planned furniture  
3 expenses, planned appliance purchases, vacation, children's education, and  
4 retirement home.
- 1 13. A computer program as recited in claim 10, wherein the code segment that  
2 adjusts preferences adjusts a degree of favoritism between time and quality.

- 1 14. A computer program as recited in claim 10, wherein the code segment that  
2 adjusts preferences adjusts a priority for the selected goal.
- 1 15. A computer program as recited in claim 10, wherein the code segment that  
2 adjusts preferences adjusts a time expectation for the amount of time  
3 expected for achieving the selected goal.
- 1 16. A computer program as recited in claim 10, wherein the code segment that  
2 adjusts preferences adjusts a quality expectation for the degree of quality  
3 expected for the selected goal.
- 1 17. A computer program as recited in claim 10, wherein the code segment that  
2 displays the impact on attaining the goals includes displaying a summary of  
3 changes in achieving the goals as a result of the adjusted preferences.
- 1 18. A computer program as recited in claim 10, further comprising a code  
2 segment that selects a default profile; and wherein the goals are based on the  
3 default profile.
- 1 19. A system for balancing attainment of goals, comprising:  
2 (a) logic that presents a plurality of goals;  
3 (b) logic that adjusts preferences related to one of the goals;  
4 (c) logic that determines an impact on attaining the goals based on the adjusted  
5 preferences; and  
6 (d) logic that displays the impact on attaining the goals.
- 1 20. A system as recited in claim 19, wherein the goals include at least one of:  
2 home, vehicle, monthly allowance and savings, planned furniture expenses,  
3 planned appliance purchases, vacation, children's education, and retirement  
4 home.

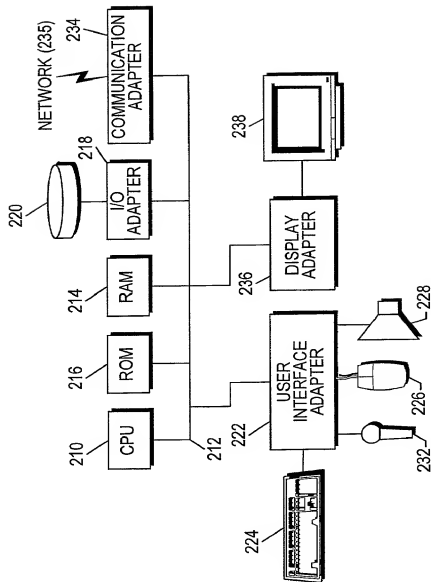
# **SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR MAKING FINANCIAL DECISIONS BY BALANCING GOALS IN A FINANCIAL MANAGER**

## **ABSTRACT**

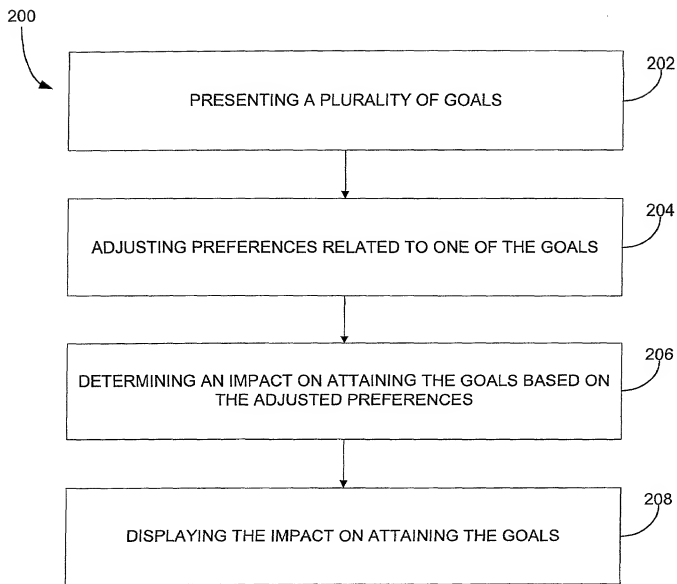
A system, method and article of manufacture are provided for balancing attainment of goals. First, a plurality of goals are presented to a user. The goals may be previously selected by the user or may include a default set of goals, for example. The user is permitted to adjust preferences related to a selected one or more of the goals. An impact on attaining some or all of the goals is determined based on the adjusted preferences. The impact on attaining the goals is then displayed to the user.



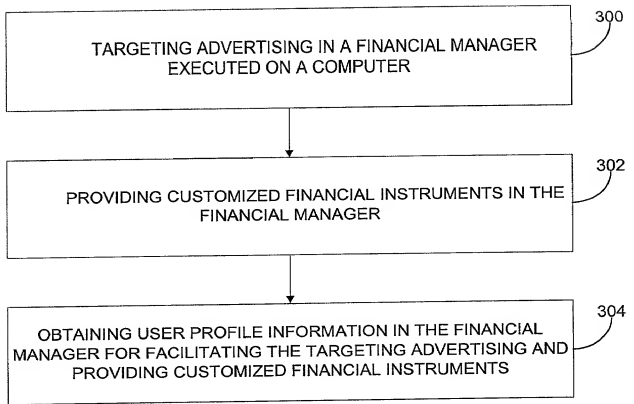
**Figure 1**



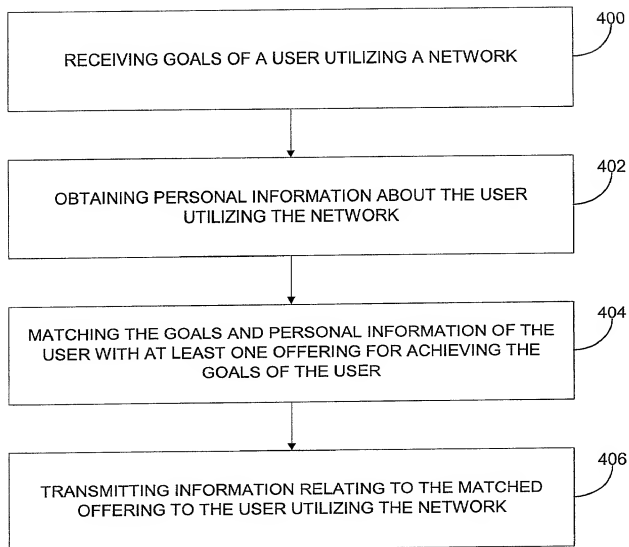
**Figure 2**



**Figure 2A**

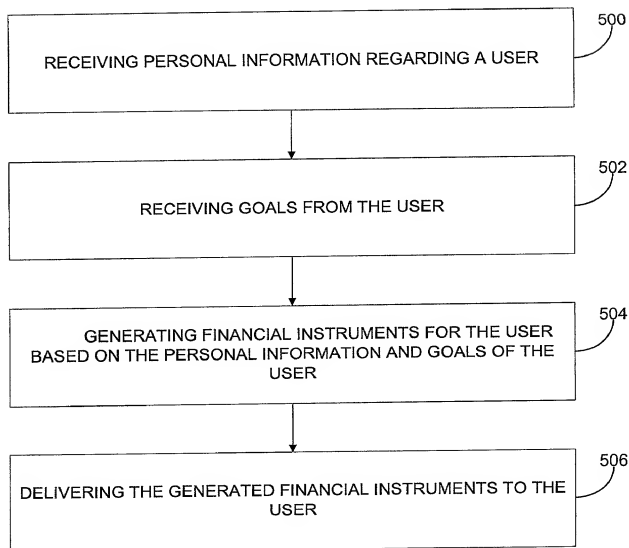


**Figure 3**

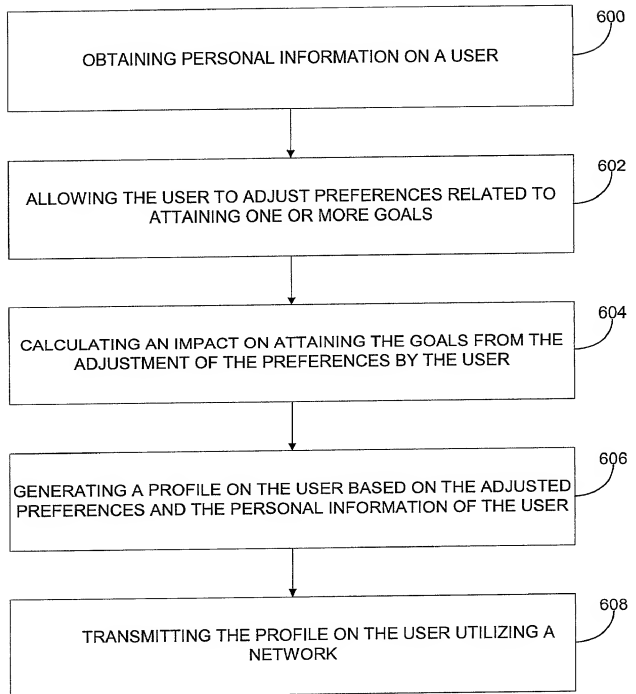


**Figure 4**

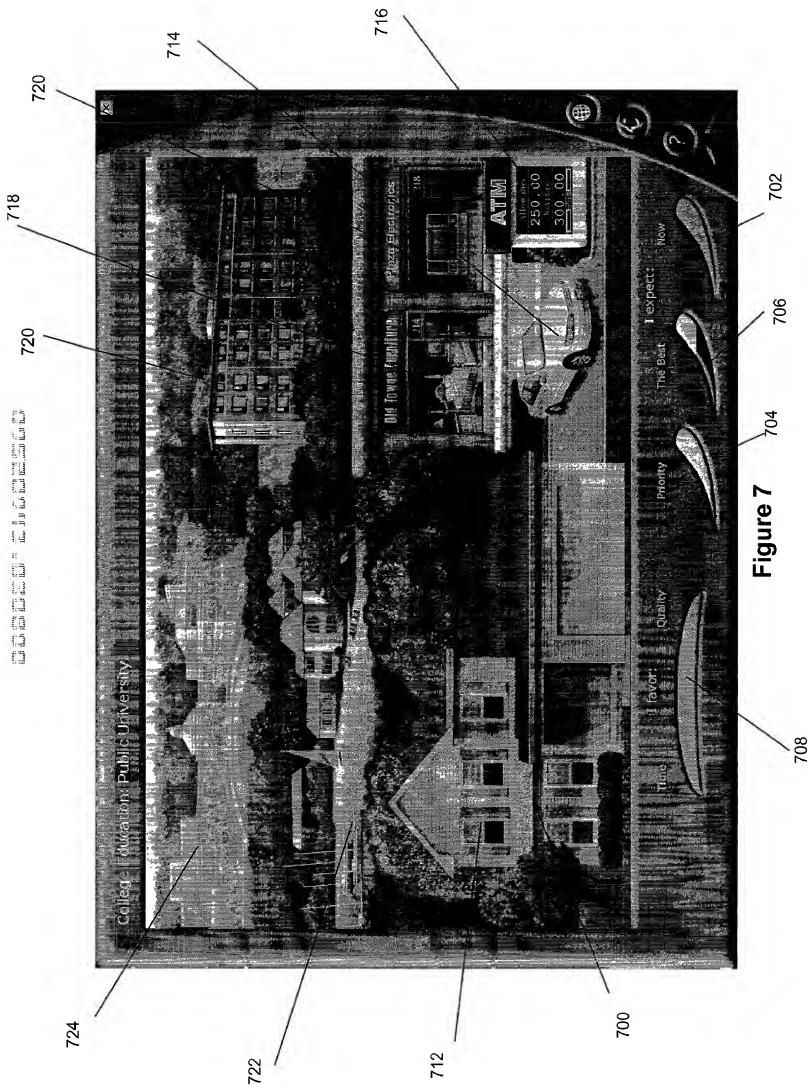




**Figure 5**



**Figure 6**



**Figure 7**

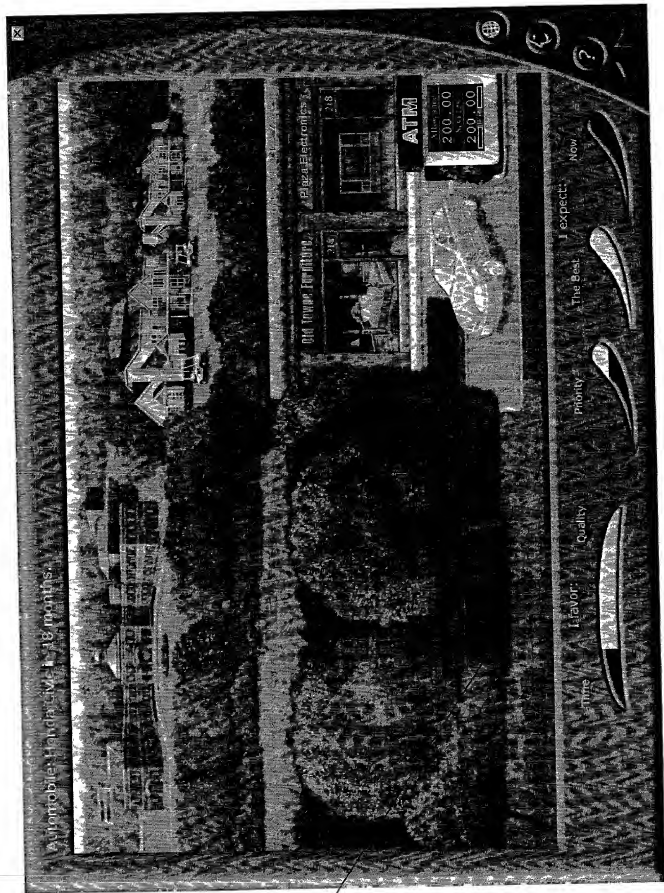
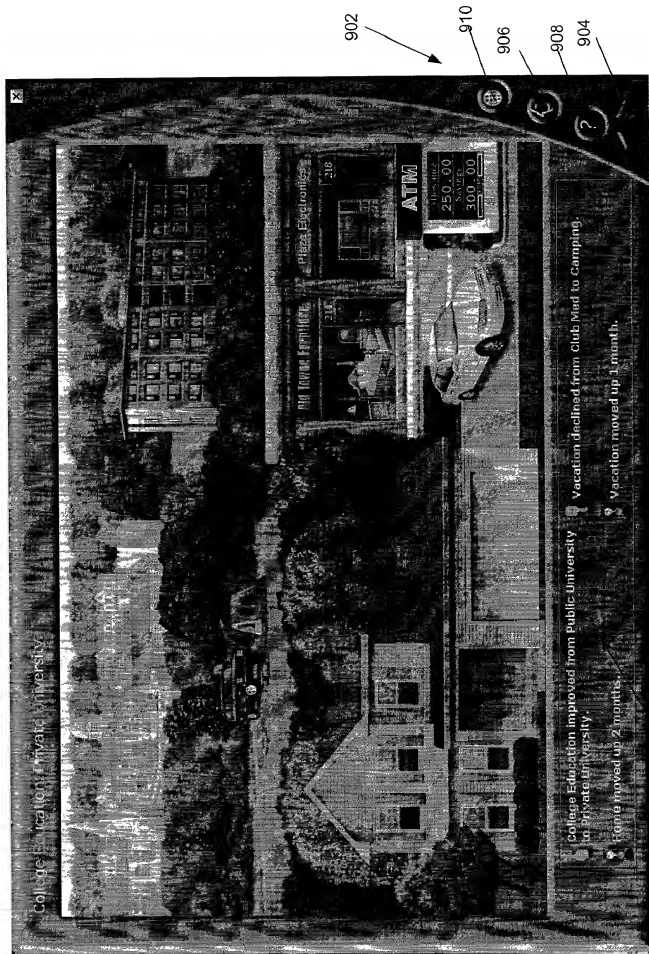


Figure 8

$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$	$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{y}} \right) = \frac{\partial L}{\partial y}$	$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{z}} \right) = \frac{\partial L}{\partial z}$
$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{\theta}} \right) = \frac{\partial L}{\partial \theta}$	$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{\phi}} \right) = \frac{\partial L}{\partial \phi}$	$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{\psi}} \right) = \frac{\partial L}{\partial \psi}$



## Figure 9

900

1000

# Financial Assumptions

Current Salary:	70000.00	1002																				
Expected Rate of Increase:	5%	1004																				
Rate of Return on Savings:	8%	1006																				
Risk Tolerance:	Medium	1008																				
Calculation Date:	1999	1010																				
Expected Inflation Rates:	<table border="1"> <tr> <td>College Education:</td> <td>8%</td> </tr> <tr> <td>Housing:</td> <td>7%</td> </tr> <tr> <td>Food:</td> <td>5%</td> </tr> <tr> <td>Allowance:</td> <td>5%</td> </tr> <tr> <td>Retirement:</td> <td>5%</td> </tr> <tr> <td>Savings:</td> <td>5%</td> </tr> <tr> <td>Furniture:</td> <td>2%</td> </tr> <tr> <td>Home:</td> <td>8%</td> </tr> <tr> <td>Automobile:</td> <td>6%</td> </tr> <tr> <td>Vacation:</td> <td>4%</td> </tr> </table>		College Education:	8%	Housing:	7%	Food:	5%	Allowance:	5%	Retirement:	5%	Savings:	5%	Furniture:	2%	Home:	8%	Automobile:	6%	Vacation:	4%
College Education:	8%																					
Housing:	7%																					
Food:	5%																					
Allowance:	5%																					
Retirement:	5%																					
Savings:	5%																					
Furniture:	2%																					
Home:	8%																					
Automobile:	6%																					
Vacation:	4%																					

1012

1014

Figure 10



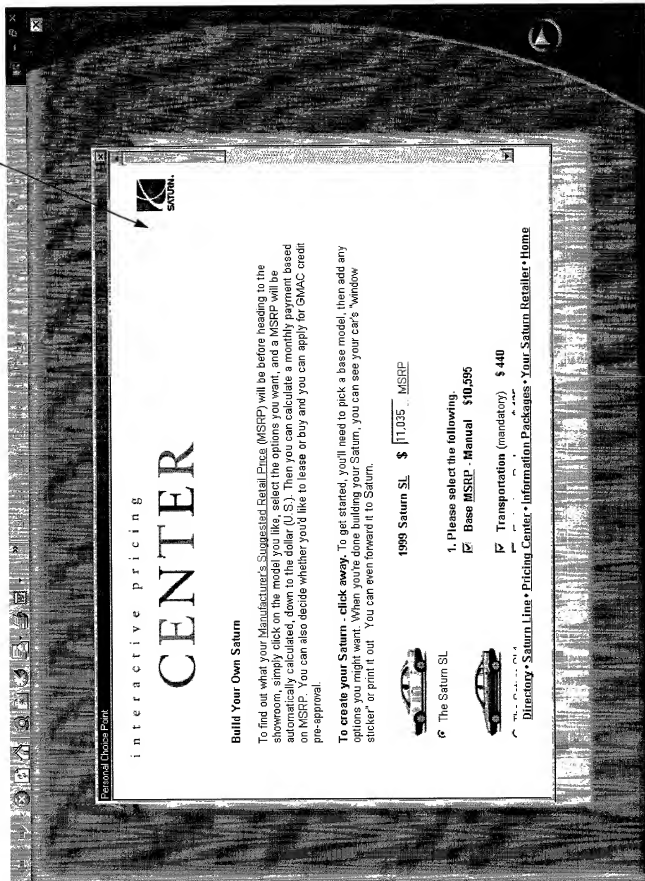


Figure 12



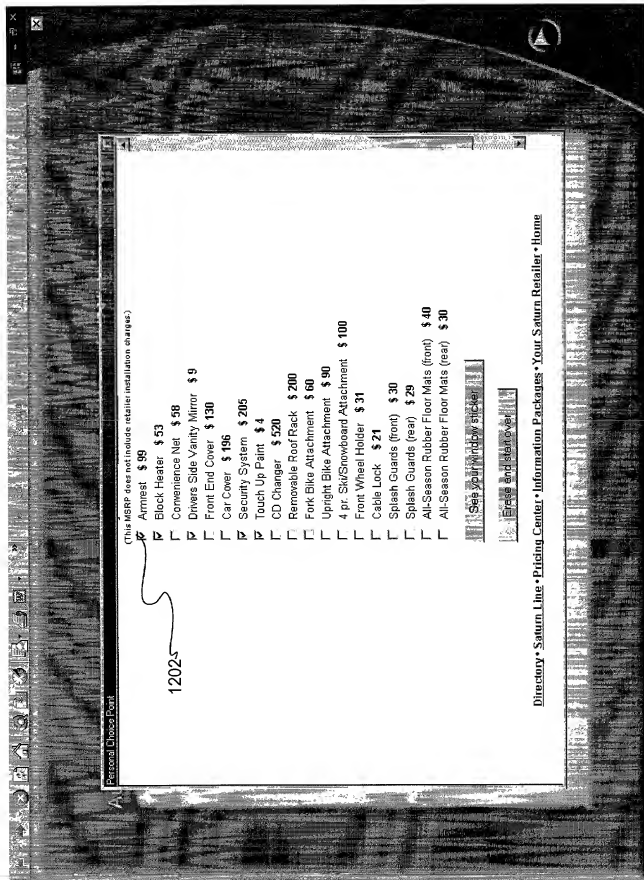


Figure 12A

# 1999 SL - MANUAL

Exterior Color: none

Interior Color: none

Manufacturer's Suggested Retail Price

\$10595

## STANDARD EQUIPMENT

- 1.9L IURE 4-VALVE ENGINE
- 5-SPEED MANUAL TRANSMISSION
- HYDRAULIC CLUTCH
- SEQUENTIAL-PORT FUEL INJECT.
- STAINLESS STEEL EXHAUST
- MAINTENANCE-FREE BATTERY
- POWER BRAKES W/FRONT DISC
- INDEPEND. 4-WHEEL SUSPENSION
- LUBE-FOR-LIFE SUSPENSION
- DENT-RESISTANT EXTER. PANELS
- 12/07/84 RADIAL TIRES
- STYLED FULL WHEEL COVERS
- COMPACT FACIAL SPACE TEE
- DRIVER-SIDE EXTERIOR MIRROR
- HALOGEN HEADLAMP
- TINTED GLASS/WINDSHIELD
- TACHOMETER & TPO ODOMETER
- RECLINING FRONT BUCKET SEATS
- INTEGRAL FRONT HEADRESTS
- FOLD-DOWN REAR SEAT (60/40)
- ADJUSTABLE STEERING COLUMN

## STANDARD VEHICLE PRICE

Options Installed by Manufacturer

- Air Conditioning
- ABS & Traction Control
- Right Side Mirror
- Cupholder Port and Rear Door Mats
- ALUM. Crossover w/Grillebar

960  
695  
40  
60  
420

Directory • Saturn Line • Pricing Center • Information Packages • Your Saturn Retailer • Home

Figure 12B

1206

## Automobile

1208  1222   1224

204

Option Desirability

1214

Preferred Replacement Schedule

5 years 1212

Preferred Insurance Provider

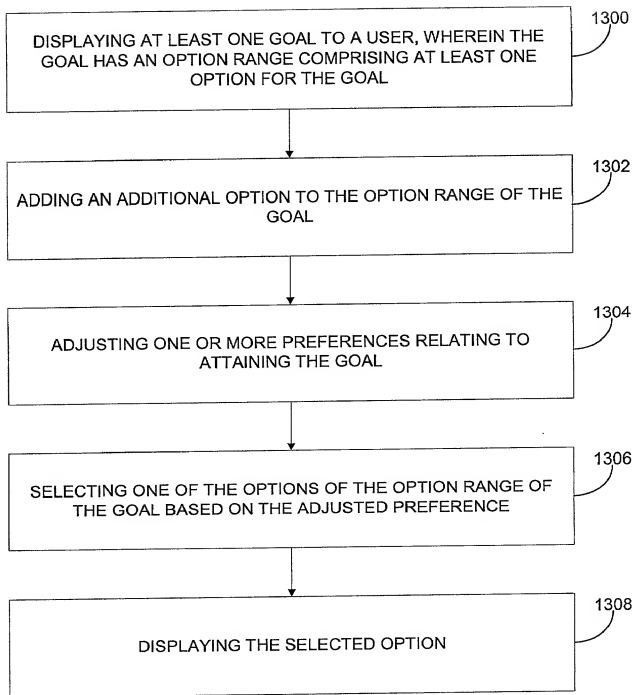
Allstate 1216

Preferred Options

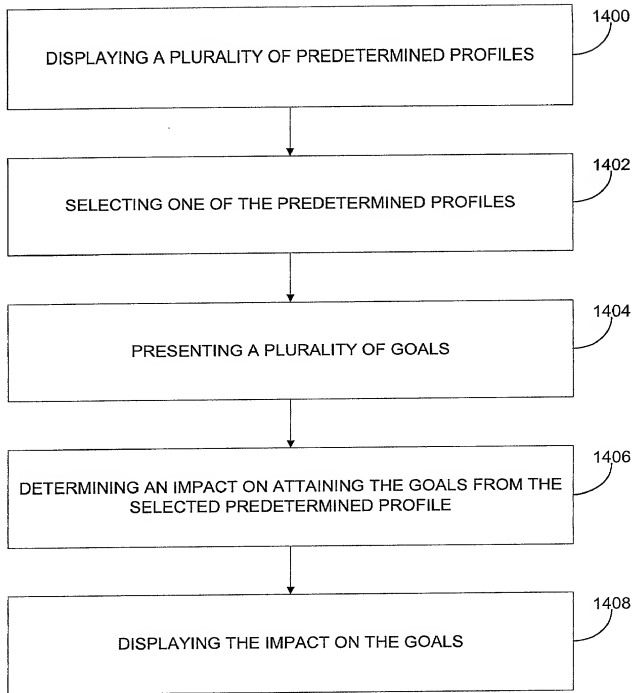
1218

Air Conditioning (\$960), ABS & Traction Control (\$695), Right Side Mirror (\$40), Carpeted Front and Rear Floor Mats (\$60), AM/FM Cassette w/Equalizer (\$420), Antirust (\$90), Block Heater (\$58), Convenience Net (\$58), Driver's Side Vanity Mirror (\$90), Front End Cover (\$130), Car Cover (\$196), Security System (\$205), CD Changer

Figure 12C



**Figure 13**



**Figure 14**